

Effectiveness of Enjoyable Self-Learning in some Concepts of Science among Students of Class VIII at Kendriya Vidyalaya No. 1 of Bhopal

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ABSTRACT

It is observed that the students of upper primary level are exposed to multimedia and other type of learning resources. Most of them are even attending coaching classes in class 8th to 12th package for cracking professional tests. So, as observed, their daily routine is very packed and even though they have some spare time, they feel to spend it in attractive and colorful source of internet related activities. Thus day by day the attitude of SELF LEARNING is decreasing in students. As a teacher, I feel that without self learning, no good output can be given because neither concept based, nor answering application based question, skill based questions be successfully attempted. To enhance the knowledge and understanding, teacher has tried to know the interest of the students and curved the path of their self learning in that direction. Class 8th students were found to be interested in pictorial messages and working on the tabs or mobiles in leisure time at home, so some topics in science like. FORCE, FRICTION, PRESSURE were developed accordingly and the experimental group were exposed to QR codes of these pictoric topics, so that wherever they like, they can enjoy it and thus self learning will take place.

1. Introduction

Students of 21st Century are smarter and supposed to be pro-active. So the teaching-learning process needs an upside down turning. Students are exposed to multiple source of knowledge. Some of them attend coaching-centers for cracking professional education from upper primary level itself, some of them try to surf internet, where various lessons, video's are available. But being exposed, to this vast crowd of knowledge, students, at this age, are unable to differentiate what is correct and what should not be grasped.

Science is certainly a very exciting subject to learn and it explores children's imagination about the environment and whatever happens in everyday life. As children are naturally curious about nature, it is very important to develop their attitudes toward science at the early stages of school for their better understanding of scientific phenomena and scientific concepts (Eshach, 2006). In this connection joyful teaching has possible significance in ensuring quality learning. Until students are given learning friendly environment they won't feel attraction to come to school. And for this purpose we should implement joyful teaching (Rahman, 2010). Joyful teaching could change the state of education. It creates a framework where a more effective teaching and learning environment can be provided through student activity than teacher-driven classroom designs (Bogard, 2008). Teachers facilitate students through learning centered strategies to engage them in self learning and creativity (Wei, Hung, Lee & Chen, 2011).

One proposed solution to afore mentioned problem is to make students practice to learn the different features of study in science, including their own discovery. There are also many approaches to Practical work and various activities should be in practice to understand the concepts of science in primary school (Tytler, 2008). There is a wide agreement in literature that 'joyful teaching' also focuses on participatory nature of

teaching and learning that foster a sense of wellbeing (Zutshi, 2004).

This action research aimed to determine the effectiveness of enjoyable self learning teaching method on class VIII science students' academic performance and to analyze the output gathered from the experimental treatment for the betterment of the existing teaching-learning process.

For this, we suggest that students should attend classes regularly such that they are in contact with teachers, who utilises their experience, time to time training, workshops and counseling capacity to assess the level of every students and deal accordingly.

But students and probably parents do not understand the importance of regularity. Another problem is the diversion of students mind. This leads to non regularity in learning. They do not really understand the result of self-learning. This action research is an attempt to make self learning enjoyable for students. of class VIII of Kendriya Vidyalaya No. 1, Bhopal.

2. Need of this Action Research

- To promote SELF LEARNING
- To take interest in the topic & enjoy it and thus develop its concept.
- To make the students capable of answering application based question.

3. Objective

1. To study the effectiveness of Self Enjoyable Learning in Science by Students of Class VIII of Kendriya Vidyalaya No. 1, Bhopal.

4. Research Hypothesis:

1. There is no significant difference in students' performance in science between students who were taught

using enjoyable self learning method and traditional method.

5. Research Methodology

The nature of the study is followed in quantitative approach. In this research, specific questions were asked and quantifiable data was collected from students of Class VIII of Kendriya Vidyalaya No. 1, data was analyzed by using statistics, and the inquiry was unbiased and it was conducted in a objective manner. As it is mentioned prior that the study was conducted to find out the effect of enjoyable self learning teaching method on students' academic performance thus the source of data, tools construction, and sample selection analytical procedures was adopted through an experimental design which enables the researcher to test the hypothesis by reaching valid conclusions (Creswell, 2008).

6. Data Collection and Sampling

Two sections '8B' & '8C' having 72 students were identified for two equivalent groups among 200 students of class VIII of Kendriya Vidyalaya No. 1 according to their academic results of previous class. The two equivalent groups consisted of 36 students each. One group was treated as control group and another was treated as experimental group. These two groups were taught in separate classroom. Control group was taught in traditional method and experimental group was taught in enjoyable self learning teaching method. Random assignment was prepared to create perfect distribution between two groups (Creswell, 2008).

7. Description of the tool

Evaluation sheet was prepared to take pretests and posttests. For equal evaluation of two groups, same evaluation sheet was used in both the pre-test and post-test. Time and all other necessary requirements were also same in both tests. The chapter "Force and Pressure" was selected for the experiment. The question paper was prepared according to the topics of the chapter. It consisted multiple choice questions (MCQ) having 15 questions. Total marks of the test were 15. All the items were formulated according to the topics of the selected chapter for teaching to find out the students test results. The instrument was piloted upon the other section of class VIII of the same school. Experts opinion was also taken before piloting.

8. Design of Experiment

The study employed two groups pretest-posttest equivalent design to find out the effect. At first, both groups were taught a chapter in traditional method. The duration of teaching was five days. Then pretest was taken to both groups at sixth day. Then 15 days later, the same chapter was taught to control group in traditional method and experimental group was taught through enjoyable self learning teaching method. This treatment period was 5 days. At the end of the treatment period a post-test was administered to both the groups. Then pretests and posttests results were measured. From their scores mean scores were found of each groups. The mean scores of pretests and post tests were calculated. From the difference gain score was found. To determine whether the difference is significant or not, t- test was applied for hypothesis testing. The total duration of the experiment and

data collection is seventeen days. The duration of teaching on both groups was same. The data gathered through the experiment was analyzes by statistical analysis. This statistical analysis was done by the use of SPSS 16 through which mean, standard deviation, variance was found.

9. Intervention

To determine the effect of the intervention, the control group receives the traditional teaching and the treatment group receives the intervention (enjoyable self learning teaching method).

10. Traditional Method

The class was started with some simple and general examples of Force and Pressure. All classes were conducted with the use of question- answer session. The experiments of force and pressure were explained to the students through lecture. A group discussion session was conducted while a type of force was taught. A sequence of the topics from the chapter was properly maintained.

11. Conduction of New Method

The chapter FORCE AND PRESSURE was taken up in the first week of September. Starting from the introduction of Force with small activities, it continued with types of forces, contact forces with example, non contact forces with examples and activities. The next week this was followed by concept of pressure and the factors on which it depends. This was connected to day to day life example. This was followed by the topic liquid pressure with different factors and activities.

Here QR Code was introduced to the experimental group and a photo copy of the code was pasted in their note books, so that it will enhance self learning at home as an enjoyable process, at least while sharing it to parents, friends and neighbour. Since the lesson developed, is in pictoric form, no need of reading and students enjoyed it.

After 15 more days of completing the chapter a post test was taken to check whether the encouragement to SELF LEARNING enjoyably, was successful.

12. Results and Discussion

The students of control group and experimental group were given an achievement test on the selected chapter "Force and Pressure" during the experimentation period. Pre-test was taken before the enjoyable self learning teaching treatment for both groups. That means, each group had given one pre-test. Similarly, after the enjoyable self learning teaching, for both groups two post-tests were taken.

Pre-test

Table 1: Data on pre-test scores of control group and experimental group

Pre test	Mean	S.D	Variance	df	t	P
Control Group	5.56	1.99	3.968	70	2.94	.004
Experimental Group	6.92	1.93	3.736			

In pre-test the mean scores of the students were low for

both control group and experimental group. Standard deviations of both groups indicate the differences of scores among students. Uniformity among the students of both groups was almost similar considering their scores. The calculated t-value was 2.94 and the table value of "t" at 0.05 level of significance with 70 degrees of freedom is 1.99. So the result of this test of significance indicates that this difference is considered to be significant. This suggests that the two groups were significantly different in their achievement levels before the commencement of the treatment having low mean scores.

Post-Test

After 7 days, treatment was given by using enjoyable self learning teaching method for experimental group and the traditional method for control group, post-test was administered to measure their performance.

Table 2: Data on post-test scores of control group and experimental group

Post test	Mean	S.D	Variance	df	t	P
Control Group	9.25	1.87	3.507	70	6.56	< .0001
Experimental Group	12.28	2.04	4.149			

In posttest, performance of students of both groups showed dissimilarities. Standard deviation of control group was lower than experimental group. It indicates that control group gave poor performance in a uniform way than experimental group. The calculated t- value was 6.56 and the table value of "t" at 0.05 level of significance with 70 degrees of freedom is 1.994. So the result of this test of significance indicates that this difference is considered to be extremely statistically significant. For the control group the mean scores in the pre-test and the post-test were 5.56 and 9.25 respectively. For the experimental group the mean scores in the pre-test and the post-test were 6.92 and 12.28 respectively. This comparison shows that both the groups improve in respect of their achievement in the chapter during the period of treatment. But, the difference between the two groups after post test reveals that the experimental group has done better than the control group.

Gain Score

Gain score was found by difference between the post-test score and the pre-test score. The difference between the mean gain of the experimental group and control group was found.

Table 3: Data on Mean of pretest and posttest

Mean	Control Group	Experimental Group
Pretest	5.56	6.62
Post test	9.25	12.28
Gain Score	3.69	5.36

Table 4: Data showing the mean gain scores of control group and experimental group

Mean Gain Score	Mean	S.D	Variance	df	t	p
Control Group	3.69	1.21	1.475	70	5.592	< .0001
Experimental Group	5.36	1.31	1.723			

Considering their scores students of both groups showed dissimilarities. Standard deviation of control group was lower than experimental group. The difference the two means gain in achievement was found 1.67 which is a very remarkable difference. The calculated "t" value was 5.592 and the table value of "t" at the 0.05 level of significance with 70 degrees of freedom is 2.204. Here it is noticeable that the computed value was greater than table value. So the result of this test of significance indicates that there was significant difference between the two groups of students in respect of their performance of result on the content studied.

The mean score of both groups in pretest shows that students did not acquire enough knowledge on the subject matter prior to the experimentation. The traditional teaching method has almost same impact on their academic result. On the other hand, the posttest result indicated that the group of enjoyable self learning method made better result. Although control group made better result in posttest than pretest, but the improvement was not remarkable like experimental group.

The performance of the control group both in pretest and posttest shows that traditional method of teaching slightly improved their performance. It proves that, no major change has been found on students' performance in traditional method. The performance of the experimental group both in pretest and posttest shows that enjoyable self learning method of teaching significantly improved their performance and it was more effective than traditional method of teaching science at upper primary level. Therefore, the findings revealed that enjoyable self learning teaching method has more positive impact on experimental group students academic performance. These findings are analogous to Ajibade and Ndububa (2006), Xue-Hong, Hui (2007), Catterall, Chapleau, Iwanaga (1999), Lucas (2004), Greig & Kestell (2009), Sriprakash (2009), Wei, Hung, Lee and Chen (2011), and Austin (2011).

13. Recommendations

If enjoyable self learning teaching method could be used by science teachers, there will be improvement in academic performance of upper primary school students in science, hence they will develop positive interest in the core science subjects at the Secondary School level. In view of this, science teachers should incorporate enjoyable self learning teaching methods into their teaching. Studies may be undertaken to show the comparison between rural and urban, government and non-government school students through the enjoyable self learning teaching method and traditional methods.

14. Limitations

- Since the study was based on motivating the children for self-learning, which they could do at home only, there was no control of the teacher.
- Some of the students might have already developed concepts and are skillful.

15. Conclusion

In spite of some limitations the present study provides some empirical facts and insights about the effect of enjoyable self learning teaching method in science at upper primary level.

From the study it is quite evident that enjoyable self learning teaching method has a significant effect on students' learning and overall academic performance.

Since the method for encouraging self learning, among the

students of experimental group was according to their interest, they enjoyed it, Adhering to it, practice was taken up by them and the result was appreciating. They found Science interesting and its learning joyful. They understood the concept and could to skill based questions.

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