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EFFECTIVENESS OF TEACHING SCIENCE THROUGH SMART CLASSES AT SECONDARY LEVEL

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Abstract:

Smart Class is a solution designed to help teachers in meeting with new challenges and developing students' abilities and performance. It helps the teachers to access multimedia content and information that can be used for teaching students more effectively. It helps the teachers in expressing their views and ensures teacher that every student is understanding and learning. Smart Class helps the students in understanding the concepts. A well designed module allows a student to visualise the concept much better than static images. This article review that the Effectiveness of teaching Science through Smart classes at Secondary level

Key Words: Smart Class, Secondary level, Science

1. Introduction:

Smart class uses various technologies to teach students such as T.V., LCD, computers. It can be downloaded and installed from web to computer. Smart Class is an advanced technology implementation for schools. It gives tools and other contents for students learning using latest media presentations. Smart Class is available for teachers and students on the web. It can also be installed on the local server for faster access. A smart classroom contains an instructor station equipped with

computer with Internet facility also containing CD/DVD along with audio and visual equipments example speakers and LCD projector.

Smart class is nothing, but a unique and latest way to teach children. In this technique, a broad screen is there on the wall (like blackboard) and a projector is fixed on the roof so as its rays reflect upon the screen. Through this technique, it is very easy to learn things. This technique works like a computer screen and also like a blackboard. To take an example, in our times, teachers used to teach us about any picture say, solar system, just by raising up her book and tell us about it. Students sitting away from teacher were really unable to grasp the things properly. But now, any such picture appears of the screen and all the students can easily see and understand the topic easily. It also works like a blackboard as a teacher can write over the screen with a pen esp. created for that purpose.

2. Objectives of the study:

The following are the objectives of the study:

1) To compare the mean scores related to the achievement of the control group and experimental group in their pretest.
2) To study whether there is significant difference in the scores related to the achievement of pretest and posttest of the control group.
3) To find out whether there is significant difference in the scores related to the achievement of pretest and posttest of the experimental group.
4) To compare the scores related to the achievement obtained by the control group and experimental group in their posttest.

3. Hypothesis:

The following hypotheses are framed for the study:

1) There is no significant difference between the mean scores related to achievement of experimental and control group in the pretest.
2) There exist no significant difference between the mean scores related to achievement of pretest and posttest of the control group.
3) There is a significant difference between the pretest and posttest gain scores of achievement of the experimental group.
4) There is a significant difference between the posttest scores of achievement of control group and experimental group.

4. Design of the study:

The present study is conducted by experimental method and pre test - post test experiment and control group design to study the effectiveness of teaching Science through Smart classes.

Control group

pre -test ⟶ Traditional Method ⟶ post - test

Experimental group

Pre - test ⟶ Use of Smart classes post - test

The sample is divided homogeneously into control group and experimental group. The control group is treated by traditional method and the experimental group is treated by Smart classes. The difference between pre test and post test scores of both the groups are calculated and mean difference of the groups is studied.

4.1. Sample:

The sample of the study consisted of 200 students studying in tenth standard of Govt. High Schools of Kalaburagi division. Sample includes boys and girls. All students are English Medium.

4.2. Procedure of the study:

Among all students I divided students in to two equal groups as Controlled group and Experimental Group. Experimental group was taught by Smart classes on three topics of Physics viz., Motion, Electricity and optics. Controlled group was taught these three topics through traditional method. Before and after completion of teaching classes on all topics for both group pre-test and post-test have been organized. The test score of two tests were taken as data for analysis and find the effectiveness teaching science through smart classes and traditional method.

4.3. Statistical technique:

The data is analyzed by using the following tests men, standard deviation and 't' test.

5. Analysis of the data:

Statistical techniques serve the fundamental purpose of the description and inferential analysis. Collected data are analyzed in terms of mean scores and standard deviation. To find the significance of the difference between pre and posttest scores t-test was applied. The results obtained in the experiment were tabulated and have been presented in the form of table and discussed below.

Objective-1: To compare the mean scores related to the achievement of the control group and experimental group (Taught with Smart classes) in their pretest.

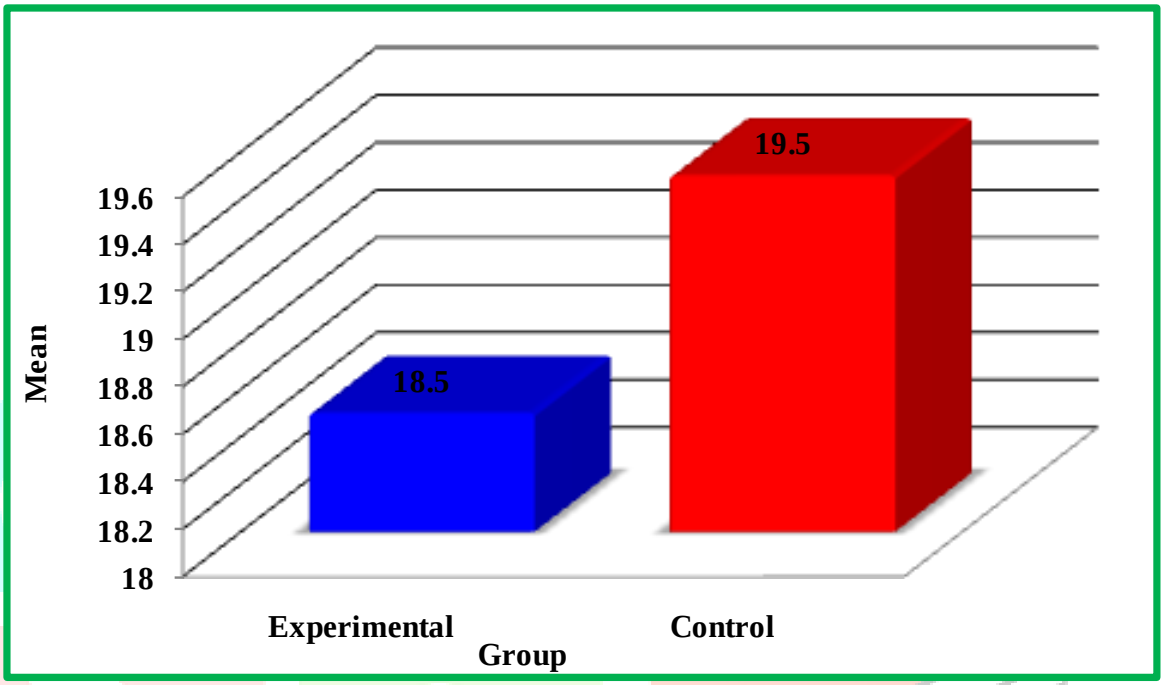
Table 1

Comparison of mean, standard deviation and t-ratio of marks gained by the Experimental and control group in the pretest

Sl. No.	Group	N	Mean	S.D	t-Value	Level of Significance
1	Experimental	60	18.5	4.83	1.36	Not significant
2	Control	60	19.5	4.91		

The above table reveals that the mean achievement score in the pre test are 18.5 and 19.5 for experimental and control group respectively. The 't' value is 1.36, which is not significant at 0.05 level. Hence it can be concluded that there is no significant difference between experimental and control group in the pretest achievement. Both the group has nearly the same score in the pretest. Hence, the first null hypothesis ($H_0$1) has been accepted.

Graph- 1: Comparison of mean, standard deviation and t-ratio of marks gained by the Experimental and control group in the pretest



Objectve-2: To study whether there is significant difference in the scores related to the achievement of pretest and posttest of the control group.

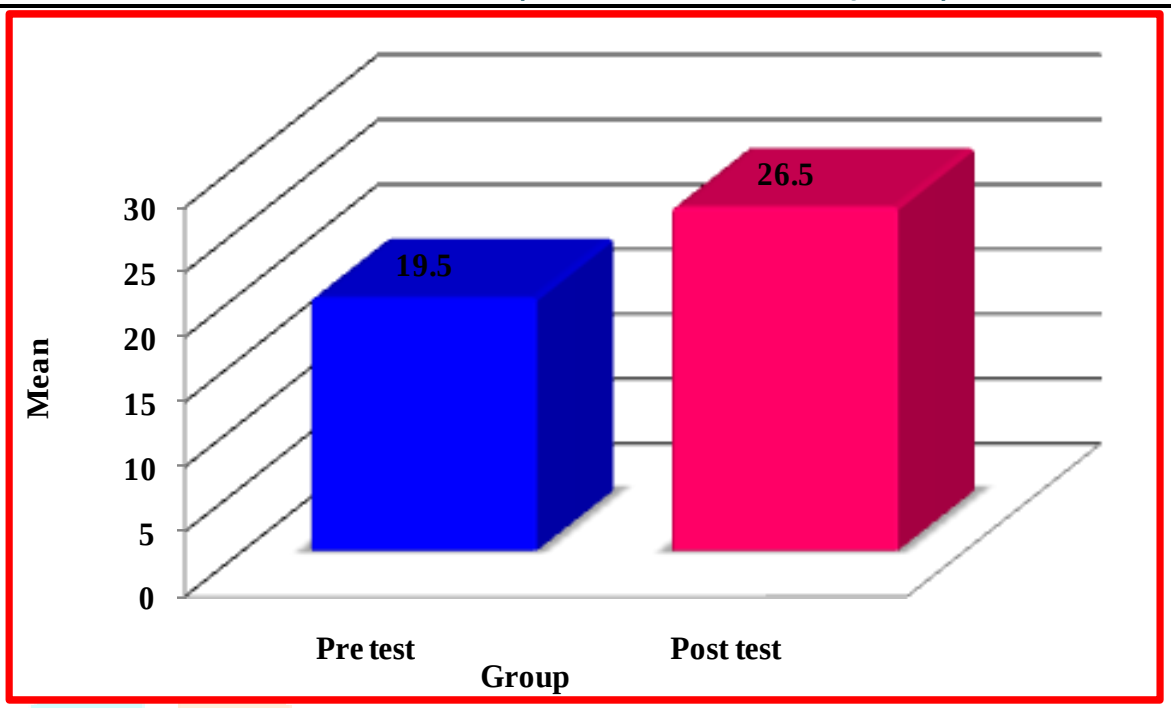
Table-2

Comparison of mean, standard deviation and t-ratio of scores related to the achievement of pretest and posttest of the control group

Sl. No.	Group	N	Mean	S.D	t-Value	Level of Significance
1	Pre test	60	19.5	4.83	1.382	Not significant
2	Post test	60	26.5	4.81		

The above table shows that the mean scores obtained by control group in pre and post test are 19.5 and 26.5 respectively. The t-value is calculated as 1.382, which is not significant at 0.05 level of significance. Control group has showed no significant change in their achievement scores in pre and posttest. Hence, the second hypothesis is ($H_0$2) accepted.

Graph-2: Comparison of mean, standard deviation and t-ratio of scores related to the achievement of pretest and posttest of the control group



Objective-3: To find out whether there is significant difference in the scores related to the achievement of pretest and posttest of the experimental group.

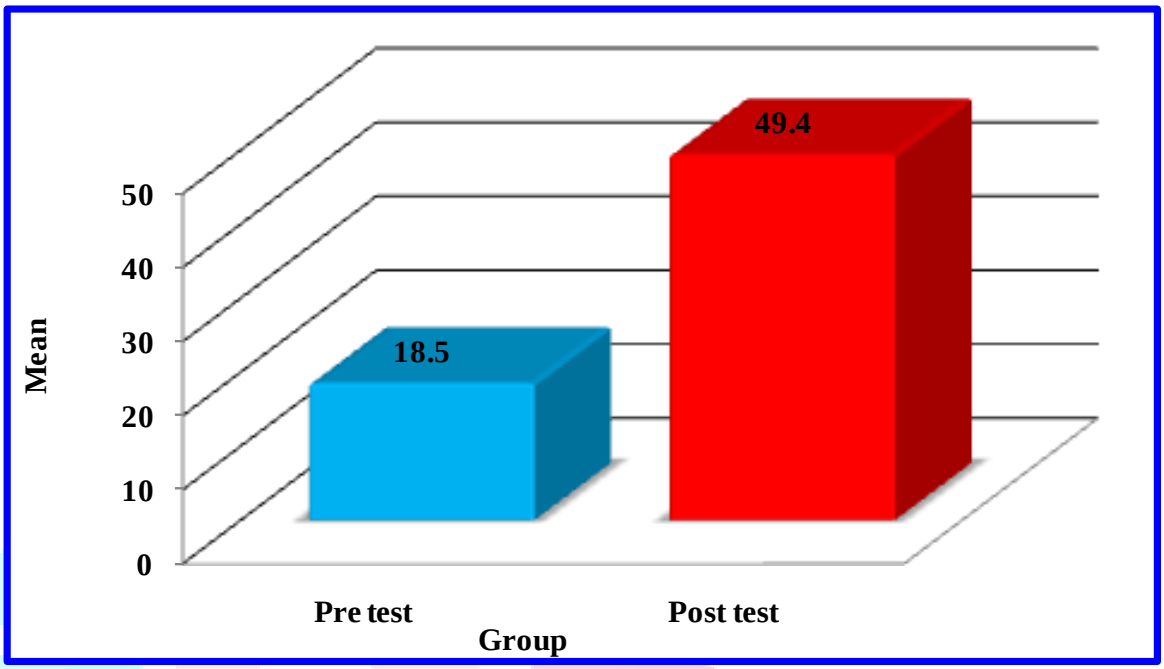
Table-3

Comparison of mean, standard deviation and t-ratio of scores related to the achievement of pretest and posttest of the experimental group

Sl. No.	Group	N	Mean	S.D	t-Value	Level of Significance
1	Pre test	60	18.5	4.83	20.56	Significant
2	Post test	60	49.4	12.21		

The above table shows that the mean scores obtained by experimental group in pre and posttest are 18.5 and 49.4 respectively. The t-value is 20.56, which is statistically significant at 0.05 level of significance. Hence, it can be safely concluded that experimental group has achieved significantly higher score in the posttest. This evidently shows the positive impact of Smart classes on achievement of students. Hence, the third hypothesis is accepted.

Graph-3: Comparison of mean, standard deviation and t-ratio of scores related to the achievement of pretest and posttest of the Experimental group



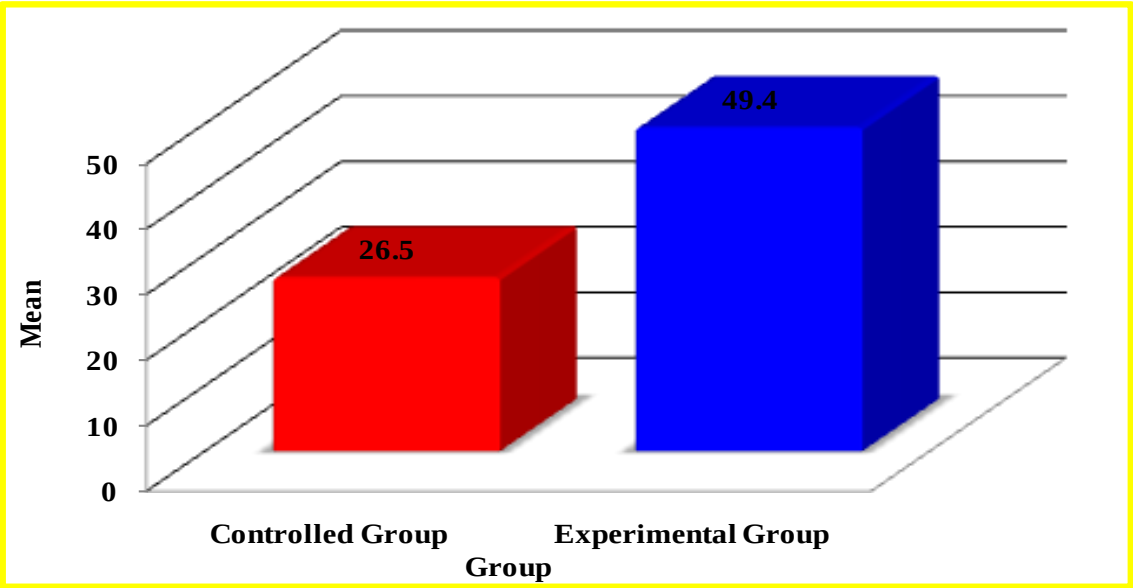
Object-4: To compare the scores related to the achievement obtained by the control group and experimental group in their posttest.

Table -4
Comparison of mean, standard deviation and t-ratio of scores related to the achievement of Experimental and control group in the posttest

Sl. No.	Group	N	Mean	S.D	t-Value	Level of Significance
1	Controlled Group	60	26.5	4.81	14.5	Significant
2	Experimental Group	60	49.4	12.21		

The table shows the mean scores of the experimental and control group are 26.5 and 49.2 respectively in the posttest. The t-value is 14.5, which is significant at 0.05 levels. Hence it is interpreted that the experimental and control group differ significantly in the posttest and the difference is in favor of experimental group. Conclusion is evident that the students who are taught by the smart class instruction learned more and so higher achievement is obtained than the traditional method of teaching. This is due to the favorable impact of Smart classes on achievement of the students. Hence, the fourth hypothesis of the study is accepted.

Graph-4: Comparison of mean, standard deviation and t-ratio of scores related to the achievement of Experimental and control group in the posttest



6. Finding of the study:

1) There is no significant difference between the mean scores related to achievement of experimental and control group in the pretest.
2) There exist no significant difference between the mean scores related to achievement of pretest and posttest of the control group.
3) There is a significant difference between the pretest and posttest gain scores of achievement of the experimental group.
4) There is a significant difference between the posttest scores of achievement of control group and experimental group.
5) The students who are taught by the smart class instruction learned more and so higher achievement is obtained than the traditional method of teaching.

7. Limitations and Delimitations:

1) The higher secondary schools of Kalaburagi division are selected for the research work.
2) This study is restricted to science subject only.

8. Conclusion:

The study has proved smart classes are effective then compared to the Traditional method. smart classes is more effective in terms enhancing achievement in Science among 8th standard students. The reasons for this effectiveness may be many one among them is the variety and ease of the presentation and the other may be the novelty and learner friendly environment created in the classroom during presentation in the classes.

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