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## EFFECTIVENESS OF CONSTRUCTIVIST TEACHING STRATEGIES USING MULTIMEDIA AT SECONDARY SCHOOL LEVEL

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### ABSTRACT:

The objective of the study was to examine the effectiveness of constructivist teaching strategies using multimedia on academic achievement of students in teaching Biological science. Experimental method was adopted for this study. The sample consisted of 50 8th class English Medium students of Tagore Memorial High School in Raichur. The investigator prepared lesson plans based on BSCS 5E Model, achievement test and Ravens Progressive Matrices. Data was analyzed by Mean, SD, and t-test. Findings revealed that constructivist teaching strategies using multimedia caused a significantly better academic achievement for secondary school students than the traditional teaching methods.

**KEYWORDS:** Academic Achievement, Traditional Teaching Strategies, Constructivist Teaching Strategies, Multimedia.

### INTRODUCTION

Knowledge is expanding rapidly and this expansion demands the quality education in our schools to meet the challenges of today's generation. The schools must provide opportunities to question, enquire, and arrive at concepts or to create new ideas" (NCF 2005). Selection of the learner centered teaching strategies is very important for development of required skills and academic achievement. In the constructivist teaching strategies, both already known information of students and the new information gained by them are fitted together. This leads to the new knowledge (Santosh Sharma). Use of multimedia in constructivist strategies helps more in the development of academic achievement.

### SIGNIFICANCE OF THE STUDY

Constructivists recommends active involvement of the students according to them if the students participated actively in learning, the learning becomes more effective and learning is less effective where the students mere passive receivers of knowledge. In this method teacher guides the students through questions activities. Teacher arranges discussion, encourages investigations. Though the NCERT advocated urgent need of the practicing of constructivist strategies using multimedia in Indian classrooms, the number of schools practicing constructivist approach using multimedia is very less. There are not many studies implementing constructivist strategies and confirming to support the constructivist teaching practices as described in the NCF, unfortunately still not understood by many schools and teachers even today. In this context the present study attempts to look at the effectiveness of constructive strategies using multimedia on eighth class school students in biology. The study also demonstrated how multimedia fit in the constructivist teaching strategies for biological

science topics of secondary schools of India, and results of this research study provide good evidence for using multimedia technology within a constructivist learning environment for Indian secondary school teachers, who want more flexible options in their classroom teaching methods.

### HYPOTHESES

1. There is no significant difference between the mean scores of the experimental group and control group in the achievement at pre test level.
2. There is no significant difference between the mean scores of the experiment group and control group in the achievement of Biology at post test level.
3. There is no mean significant difference between the mean scores of the pre- test and the post- test scores of the experimental group.
4. There is no mean significant difference between the mean scores of the pre- test and the post- test scores of the control group.

### RESEARCH DESIGN

Groups	Pre-test	Treatment	Post-test
Experimental	O1	X1	O3
Control	O2	X2	O4

O1 & O2: Pre-test;

O3 & O4: Post-test;

X1: Teaching based on Constructivist approach; and

X2: Traditional Teaching

### Sample

This study consisted of 8th class English medium students of Tagore Memorial Boys High School in Raichur of Karnataka State. A sample of 50 students was selected for the study by simple random sampling technique.

### Tools

Lesson Plans based on Constructivist Teaching Strategies of 5E's Model of BSCS; A Multimedia program for the teaching of the concepts in Biology; An achievement test in Biology were developed by the investigator; and Raven's Standardized Progressive Matrices was used for this study.

### Analysis of Data

Table 1: Mean, SD, and t-value of the Pre-Test on Achievement of the Experimental Group and the Control Group

Group	N	Mean	SD	t-value	Remark
Experimental	25	14.76	4.7	1.80	Not significant
Control	25	16.96	3.69		

From Table-1, the calculated t-value 1.80 is not significant at 0.05 level. Hence the hypothesis-1 is accepted.

**Table 2: Mean, SD, and t-value of the Post-Test on Achievement of the Experimental Group and the Control Group**

Group	N	Mean	SD	t-value	Remark
Experimental	25	20.36	3.42	2.72	Significant
Control	25	17.64	4.15		

From Table-2, the calculated t-value 2.72 is significant at 0.01 level. Hence the hypothesis-2 is rejected.

**Table 3: Mean, SD, and t-value of the Pre-Test and Post-Test on Achievement of the Experimental Group**

Test	N	Mean	SD	t-value	Remark
Pre-test	25	14.76	4.7	5.00	Significant
Post-test	25	20.36	3.42		

From Table-3, the calculated t-value 5.00 is significant at 0.01 level. Hence the hypothesis-3 is rejected.

**Table 4: Mean, SD, and t-value of the Pre-Test and Post-Test on Achievement of the Control Group**

Test	N	Mean	SD	t-value	Remark
Pre-test	25	16.96	3.69	0.60	Not Significant
Post-test	25	17.64	4.15		

From Table-4, the calculated t-value 0.60 is not significant at 0.05 level. Hence the hypothesis-4 is accepted.

### EDUCATIONAL IMPLICATIONS

- By adopting the constructivist teaching strategies, the teacher can modify existing dull and uninteresting method of teaching to a more interesting
- This will contribute towards research-tested instructional strategies for practicing teachers in any subject area.
- By the use of constructivist teaching strategies students develop academic achievement.
- Constructive teaching strategies involve the active involvement of students.

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