Research Guru
Online Journal of Multidisciplinary Subjects (ISSN : 2349-266X)
UGC Approved Journal No. 63726
Impact Factor:4.081
Volume-12, Issue-4, March-2019 www.researchguru.net

A study of effectiveness of scaffolding techniques on Achievement in Science of standard 8th students

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ABSTRACT: The present experimental study was conducted to find out effectiveness of scaffolding techniques on achievement in science of standard 8th students of gujarati medium school. The investigator used purposive sampling method for selecting sample. The effectiveness was measured by taking 42 students each as sample using control group-experiment group post test only research design. After conducting the experiment the data were collected using teacher made achievement test constructed on bases of bloom's taxonomy. The descriptive statistical technique like mean, standard deviation and t-test was used to analyse the data. This study found to be effective in term of achievement of students at standard 8th learning science by scaffolding techniques.

Keywords: scaffolding, Achievement, Science, techniques, effectiveness.

INTRODUCTION : A common practice in the education system is the way knowledge being taught students often have the expectation their role in the knowledge transmission process to sit passively to class and waiting for tier lectures to impact to knowledge them such attitude. However the students come to class unprepared to do reasoning and discussion and failure in providing two way communication. Such attitude had led the students to become more assisted learner than ability in the survival of the competitive world. To over come such limitation, there have been call by practitioner and universities for change in the learning approach from teacher centeredness to student centeredness. One of the approach suggested to improve students performance and to make them self independent learner is the scaffolding learning approach.

In education, scaffolding refers to a variety of instructional techniques used to move student progressively towards stranger understanding and ultimately greater independence in learning process. The term it self offers the relevant descriptive metaphor.Teacher provide successive levels of temporary support that help students to reach higher level of comprehension and skill that they would not be able to achieve without assistance.

Like Physical scaffolding the supportive strategies are incrementally removed when they are no longer needed and the teacher gradually shifts more responsibility over the learning process to the students, hence, the students will become self regulated and independent learner.

1 STATEMENT OF THE PROBLEM :

"A study of effectiveness of scaffolding techniques on Achievement in Science of standard 8th students"

2 OBJECTIVE OF THE STUDY :

- To develop scaffolding for teaching selected units of science at std. 8th

- To study the effectiveness of scaffolding approach on the achievement of student in science.
- To study the effectiveness of scaffolding approach in compare to traditional approach on the bases of achievement of students in science.

3 VARIABLE OF THE STUDY :

Independent variable : (Teaching approach) :

1. Traditional Method
2. Scaffolding Method

Dependant variable : 1. Achievement in Science

Control variable :

1. Standard 8th
2. Science subject
3. Units of science

4 DELIMITATION OF THE STUDY:

The present study was delimited to the Ras highschool, Ras of Anand district only. The present study was delimited to the primary school of gujarati medium only. The Researcher was selected only three units of subject science at std. 8th for study. There for present study was delimited to selected units of science only.

5 HYPOTHESES OF THE STUDY :

Hypotheses of the study are as under

Ho_1 There is no significant difference in the mean achievement of student learning science through traditional approach and scaffolding approach.

Ho_2 There is no significant difference in the knowledge achievement of student learning science through traditional approach and scaffolding approach.

Ho_3 There is no significant difference in understanding achievement of student learning science through traditional approach and scaffolding approach.

Ho_4 There is no significant difference in Application achievement of student learning science through traditional approach and scaffolding approach.

Ho_5 There is no significant difference in the skills achievement of student learning science through traditional approach and scaffolding approach.

6 POPULATION and SAMPLE;

In present study the Researcher was used purposive method for samling. The population of the study was comprise all the Gujarati medium students of Anand district studying in std.8th.The sample of the study was comprised of students of std 8th of Ras High School, Ras for only learning science subject, particular only three units of Science.

The researcher was used purposive method for sampling

No	Class	Group	Students
1	8th - A	Experiment Group	42
2	8th- B	control Group	42

7 RESEARCH TOOLS :

The present study aim to examine the effectiveness of scaffolding approach on the achievement of students in science. In this regards, the investigator were developed following research tools.

1. programme of scaffolding techniques for learning selected units of science of standard 8th.
2. Achievement test constructed using bloom's taxonomy. (post test)

8 RESEARCH DESIGN:

In the present study , effectiveness of scaffolding techniques for teaching of "selected units " of science at standard 8th was required to be checked. so experimental research method necessary to be used. The investigator determined to select two group purposively. Hence, in the present study was used "control group- experiment group post test only research design."

Experimental design of the present study is given below

Group	Independent variable	Post Test
Experiment Group E	X (Scaffolding Techniques)	T2e (Achivement)
Cotrol Group C	X (Traditional Method)	T2c (Achivement)

9 METHOD OF DATA ANALYSIS:

In this study Researcher done the analysis and interpretation by using the parametric statistic because the data was in interval scale . The descriptive statistical technique like mean, standard deviation and t-test was used to analyse the data.

10 HYPOTHESIS TESTING:

To the study the significant difference between the mean achievement of the student learning science through traditional approach and scaffolding approach data were analysed using t-test.

HO_1 There will be no significant difference between the Mean achievements of student learning science through traditional approach and scaffolding approach.

Table

Group	Mean	S.D	SED	T Value Table	T value
Experiment Group	26	8.91	1.75	2.58	3.42**
Control Group	20	7.10			

Significance at 0.01 level of confidence.

It can be observed in table that,

Mean score and S.D. of experiment group on science achievement test are 26 and 8.91 respectively and that of control group are 20 and 7.10 respectively.

t – ratio for significance difference between mean score of science Achievement is 3.42, which is significant at 0.01 level of confidence. There for HO_1 "There will be no significant difference between mean score achievement of student learning science through traditional approach and scaffolding approach" is rejected at 0.01 level of confidence mean of experiment group 26 is significantly higher than that of control group.

HO2: There will be no significant difference between the Knowledge achievement of student learning science through traditional approach and scaffolding approach.

Table

Group	Mean	S.D	SED	T Value Table	T value
Experiment	7	1.42	0.380	3.24	2.58
Control	6	1.41			

0.01 Significant level

As it is observed that table T- value (2.58) is less than calculated T-value (3.24), Hence, the null hypothesis stating. "There will be no significance difference between The Knowledge achievement of student learning science through traditional approach and scaffolding approach" is Rejected at the 0.01 level of significance. It means that there is a significant difference between Knowledge achievement groups in achievement test. It can be mentioned that the teaching through scaffolding base learning was effective and enabled student to score better.

HO3: There will be no significance difference between Understanding achievement of student learning science though traditional approach and scaffolding approach.

Table

Group	Mean	S.D	SED	T Value cal	T-value Table
Experiment	7	2.10	0.44	2.27	1.96
Control	6	1.92			

Significant level 0.05

As it observed that table T- value (1.96) is less than calculated T- value (2.27) Hence, the null hypothesis standing "There will be no significance between Understanding achievement of student learning science through traditional approach and scaffolding approach is rejected at the 0.05 level of significance, It means that there is significance, difference between Understanding achievement of students of control group and experiment group in achievement test.

Ho4: There will be no significance difference between Application achievement of student learning science through traditional approach and scaffolding approach.

Table

Group	Mean	S.D	SED	T Value cal	T- value Table
Experiment	6	2.60	0.530	3.76	2.58
Control	4	2.26			

0.01 Significant level

As it is observed that table T- value (2.58) is less than calculated T-value (3.76), hence the null hypothesis stating " There will be no significance difference between Application achievement of student learning science through traditional approach and scaffolding approach " is rejected at the 0.01 level of significant difference between Application achievement of students of control group and experiment group in achievement test.

HO5: **There will be no significance difference between skill achievement of student learning Science through traditional approach and Scaffolding approach.**

Table

Group	Mean	S.D	SED	T-Value Cal	T-value Table
Experiment	7	3.80	0.728	4.12	2.58
Control	4	2.81			

0.01 significant level

As it is observed that table T- value (2.58) is less than calculated T-value (4.12), Hence the Null hypothesis standing " There will be no significance difference between skill achievement of student learning science through traditional approach and scaffolding approach " is rejected at the 0.01 level of significance. It means. that there is significant difference between skill achievement of students of Control group and experiment group in achievement test. It can be mentioned that the teaching through scaffolding based learning was effective than traditional learning approach.

11 MAJOR FINDINGS :

The study has yielded some significant findings of effectiveness of scaffolding learning approach to teach science at std.8th level. The following major finding have been arrived at regarding impact of scaffolding learning approach.

- This study found to be effective in term of achievement of student at std.8th learning science by scaffolding approach.
- This study found that scaffolding learning approach make student independent learner and Increase their achievement.
- Scaffolding based programme was effective as compared to the traditional method of teaching.
- Scaffolding based programme had a positive impact on the student's achievement score.
- Learness were motivated to think, discuss, and question during the sessions in the experimental group.

- This study found that the scaffolding learning approach increased learner's knowledge, understanding, application and skill achievement.

12 CONCLUSION :

The scaffolding based programme made and tried out by the researcher was found to be effective in terms of the student's achievement in compared to teaching through traditional method. Scaffolding learning approach enhanced the learning of students. Teacher can use it innovatively by providing them materials for self learning and keeping only discussion in the classroom. This kind of teaching can involve the students in discussion which make learning participatory, joyful and interesting. It makes students independent learner.

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