

**Abstract:-**

Academic achievement of the students was directly related with the proper teaching methods. Constructivists' approach of teaching helped to learn science subjects among the students much better over traditional approach of teaching. During the achievement tests in science subjects in different schools selected here secured the students to score much better results with constructivists' approach of teaching rather than that of traditional approach of teaching. A comparison between teaching-learning strategies of traditional teaching methods with the constructivists' approach of teaching is discussed.

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## **A COMPARATIVE ACCOUNT OF ACADEMIC ACHIEVEMENTS AFTER TEACHING WITH TRADITIONAL AND CONSTRUCTIVISTS' APPROACH**

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## INTRODUCTION :-

Teaching-learning is one of the most important components of the education system. Clarke says teaching means activities that are designed and performed to produce change in the student's behavior; it will become clear that teaching consists of all those activities or system of actions that are aimed at producing learning. Learning is defined as relatively permanent change in the behavior of the students. Traditionally, teaching was considered to be an act of imparting knowledge to the learners in the classroom situation. But according to the modern connotation of the term, teaching is a process by which a learning situation is created where a learner can learn and acquire new and desired knowledge through a preplanned activity or learning experience to construct his or her own concept regarding the matter. Now-a-days it is believe that no one can teach something; he can only create the situation conductive to learning.

Modern era is dominated by technology and management. Technology is the latest mantra in educational communication and is used for achieving different learning objectives. "Chalk and talk" along with simple teaching aids viz., maps, diagrams, charts, posters etc. still continue to be the backbone of conventional classroom teaching. Studies have revealed that if used effectively, technology applications can help students in using higher order thinking skills such as thinking critically, analyzing making inferences and solving problems. It can involve students in innovative and creative activities in collaborative way. Technology provides access to information and helps in establishing contacts with teachers and students located at different locations.

Constructivism is a learning theory describing the process of knowledge construction. Though constructivism is a learning theory, it is the application of what are often referred to as "Constructivist practices" (Zemelman, Daniels and Hyde, 1993) in the classroom and elsewhere that provide support for the knowledge construction process.

Constructivism is not a spectator sports. By definition, knowledge construction is an active, rather than a passive process. The process of constructing one's knowledge can involve cognitive and physical constructions of meaning, though the development of mental modes or schemas, as well as physical or virtual representations of knowledge (Applebee, 1993). Two valued tenets of constructivist practice are the process of collaborative learning and deep personal introspection one's own learning process (Boomer, 1992). Mental manipulation, visualization, and the process of developing, testing and discarding hypotheses (Kelly, 1991) beside dialogue are also indicative actions of an individual actively engaged in the knowledge construction process.

The practical application of constructivist practices in the classroom presents additional challenges and benefits to both the teacher, and the student (Boomer, 1992; Fosnot, 1996). The challenge for the teacher is to provide relevant frameworks upon which the student can construct knowledge and understanding, and to act as a facilitator rather than knowledge-bearer during the process (Zemelman, Daniels and Hyde, 1993). Students must become actively engaged in their learning experience, rather than act as passive recipients of information (Sheridan, 1993).

The main aim of a teacher is to create interest in pupils and their participation in learning experience. The teacher aims at bringing about desirable changes in the thinking and attitude of pupils. He acts as a creator of learning experiences. Nothing can be taught. But it has to be taught. A single method may not be used for teaching all topics. Different things are to be enough to develop all skills and to bring about all desirable changes in pupils.

## OBJECTIVES

1. To study of the system of knowledge construction with respect to the achievement of the learner.
2. To study the increase of teaching-learning efficiency of both the teacher and the learner with the help of the constructivism.
3. To compare the traditional teaching with the constructivist approach of teaching.

## METHODOLOGY

It was an experimental research. The students were being exposed to both the traditional and constructivists approach of teaching. For these purpose total number of students presented at the experimental date were grouped into two separate sections and accommodated into separate classrooms. One group was exposed to traditional approach of teaching and the other group was exposed to constructivists' approach of teaching. After that an achievement test was taken from each and every student to get the actual score of the test. Percentage of marks was calculated and analyzed qualitatively as well as quantitatively.

### SAMPLE

234 students of class VIII were randomly selected from four different schools in Burdwan district of West Bengal for this study.

### TOOLS AND TECHNIQUES

Self-made achievement test of each science subjects (L.Sc. and P.Sc.) for the students was taken. The marks achieved by each student was calculated and placed in a tabular form as well as graphically where required.

### PROCEDURE OF DATA ANALYSIS

Statistical analysis was done after proper collection of the data following the Wilcoxon Matched – Paired Signed – Ranks Test method.

### RESULTS AND DISCUSSION

**Table 1: Result of the achievement Test in L.Sc. in different School**

Name of the School	Teaching Approach	No. of student secured marks					Total No. of Student present
		>80%	>60% - <80%	>45% - <60%	>25% - <45%	<25%	
Kshirgram	T	00	11	15	02	00	28
S.J.Banipith	C	05	27	03	00	00	35
Makhaltore	T	01	04	17	05	00	27
Madhyamik Vidyalaya	C	11	17	02	00	00	30
Islampur G. N. B. Institution	T	00	02	04	20	00	26
	C	04	09	02	00	00	15
Biswarambha	T	01	12	11	08	00	32
Vidyapith	C	10	18	13	00	00	41

T=Traditional approach of teaching, C=Constructivists approach of teaching.

**Table 2: Result of the achievement Test in P.Sc. in different School**

Name of the School	Teaching Approach	No. of student secured marks					Total No. of Student present
		>80%	>60% - <80%	>45% - <60%	>25% - <45%	<25%	
Kshirgram	T	00	10	13	05	00	28
S.J.Banipith	C	05	25	05	00	00	35
Makhaltore	T	01	04	17	05	00	27
Madhyamik Vidyalaya	C	11	16	03	00	00	30
Islampur G. N. B. Institution	T	00	01	06	16	03	26
	C	02	11	02	00	00	15
Biswarambha	T	00	12	11	09	00	32
Vidyapith	C	07	20	12	02	00	41

T=Traditional approach of teaching, C=Constructivists approach of teaching.

The results of the achievement tests in L.Sc. were mentioned in a tabulated manner (Table 1). The percentages of marks were categorized into five different ranges. The results of the achievement test in L.Sc. of four different schools were presented in table 1. It was found that no student was secured below 25% marks in L.Sc. (Table 1). The number of students from each school secured >45% to <60% marks was higher (exception- Biswarambha Vidyapith) with traditional approach of teaching than that of constructivists approach of teaching in L.Sc. (Table 1). But the number of students from each school secured >60% to <80% marks and >80% was higher with constructivists approach of teaching than traditional method in L.Sc. (Table 1). It was due to a greater number of students grasped the lesson easier with the constructivists approach of teaching-learning method with the researcher. The results of the achievement tests in P.Sc. were mentioned in a tabulated manner (Table 2). The percentages of marks were categorized into five different ranges. The results of the achievement test in P.Sc. of four different schools were presented in table 2. It was found that no student was secured below 25% marks in P.Sc. except in case of Islampur G. N. B. Institution with traditional teaching

(Table 2). The number of students from each school secured >45% to <60% marks was higher (exception- Biswarambha Vidyapith) with traditional approach of teaching than that of constructivists approach of teaching in P.Sc. like L. Sc. (Table 2). But the number of students from each school secured >60% to <80% marks and >80% was higher with constructivists approach of teaching than traditional method in P.Sc. which was similar with L.Sc. (Table 2). It was due to a greater number of students grasped the lesson easier with the constructivists approach of teaching-learning method with the researcher.

From the calculation in each case it was found that the values of the Z in case of all the school below 1.96, which was strongly, recommended the standard range. The Z values of achievement test in L.Sc. and P.Sc. was 0.95 and 1.21 in case of Kshirgram S.J.Banipith. The Z values of achievement test in L.Sc. and P.Sc. was 1.21 and 1.21 in case of Makhaltore Madhyamik Vidyalaya. The Z values of achievement test in L.Sc. and P.Sc. was 1.21 and 0.40 in case of Islampur G. N. B. Institution. Islampur G. N. B. Institution. The Z values of achievement test in L.Sc. and P.Sc. was 1.75 and 1.75 in case of Biswarambha Vidyapith.

Regarding the comparison between the achievement test among the different schools, it was found that Makhaltore Madhyamik Vidyalaya showed maximum number of students secured 80% and above marks in L.Sc. with the constructivists approach of teaching. It was due to that the school had the K-yan Machine in their classroom, and the students enjoyed the lesson very much. But in case of number of students secured >60% to <80% marks, it was found that Kshirgram S.J.Banipith showed maximum number of students with the constructivists approach of teaching.

Regarding the comparison between the achievement test among the different schools, it was also found that Makhaltore Madhyamik Vidyalaya showed maximum number of students secured 80% and above marks in P.Sc. with the constructivists approach of teaching. It was also due to that the school had the K-yan Machine in their classroom, and the students enjoyed the lesson very much. But in case of number of students secured >60% to <80% marks, it was found that Kshirgram S.J.Banipith showed maximum number of students with the constructivists approach of teaching.

The above explanation shows that among both the cases in both the subjects the number of students was higher rather than that of the traditional approach of teaching and in all the cases a number of students were secured the higher range of marks. Constructivists approach of teaching helps the students to think much better, developed their mental schema, their knowledge construction greatly that that of traditional approach of teaching. In case marks range from >60% to <80% in different schools in both the subjects, it was found that there were some students secured marks with the traditional approach of teaching.

Regarding the number of students secured >45% to <60% marks in different schools in achievement tests in both the subjects; it was found that the traditional teaching method gave much better results (exception was Biswarambha Vidyapith). It was might be due to maximum students of such schools were average graded. A little achievement of this experimental research was that the researcher found that a number of average graded students secured better results with the constructivists' approach of teaching.

Regarding the number of students secured >25% to <40% marks in different schools in both the subjects, very few or no students could score result in this grade with the constructivists approach of teaching. So from the above discussion it was concluded that constructivists' approach of teaching helps to secured marks much easily among the medium graded students. Hence a number of medium graded students shifted to the higher grade with the help of their teaching-learning strategies.

## CONCLUSION

From the above experiments performed by the researcher and from the discussion it was found that constructivists' approach of teaching helps to learn the students much better over traditional approach of teaching. The results of the achievement tests in both the science subjects in different schools selected here found that the students scored much better results with constructivists' approach of teaching rather than that of traditional approach of teaching. The constructivists' approach of teaching helps knowledge construction among the students, think much better and easier, and develop ability to answer correctly during their achievement tests. All the parameters developed teaching efficiency of a teacher and the learning efficiency of a learner with the help of constructivism. So from the above experimental research it can be concluded that the constructivists' approach of teaching procedure was better rather than that of traditional teaching approach.

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