EFFECT OF CONSTRUCTIVE TEACHING APPROACH ON ACADEMIC ACHIEVEMENT OF SENIOR SECONDARY SCHOOL STUDENTS

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ABSTRACT

The Study was undertaken to examine the effect of constructive teaching approach on academic achievement of students. For this we have conducted an experimental study on 10+1 students in subject of Economics(optional). A sample of 80 students was divided into four equal groups. One experimental group of high intelligence students, one controlled group of high intelligence students, one experimental group of low intelligence students and one controlled group of low intelligence students. Experimental groups were taught by the constructive teaching approach and controlled groups were taught by conventional method. Pre and Post tests were conducted on all the groups and the post test scores and the differences of pre and post tests were taken into consideration for analysis of the result. This study revealed that the students who taught by constructive method they gained better than those students who taught by conventional method.

INTRODUCTION

Formalization of the theory constructivism is generally attributed JEAN PIAGET, who articulated mechanism by which knowledge is internalized by learners. It is a theory of knowledge (epistemology) that argues that humans generate knowledge and meaning from an interaction between their experiences and their ideas.

Mahoney, 2004 said that students come in a classroom with their own experiences and a cognitive structure based on those experiences. These preconceived structures are valid, invalid or incomplete. The learner

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reformulate his/her existing structures only if new information or experiences already in memory. Inferences, elaborations and relationship between old perceptions and new ideas must be personally drawn by the student in order for the new idea to become an integrated, useful part of his/her memory. In short the learner must actively construct new information onto his/her existing mental framework for meaningful learning to occur.

In this theory, the focus tends to shift from the teacher to the students. The classroom is no longer a place where the teacher (expert) pours knowledge into passive students , who waits like empty vessels to be filled the teacher function more as a facilitator who coaches, mediates, prompts, and helps students to develop and assess their understanding, and thereby their learning . Thus the role of teacher is to organize information around conceptual clusters of problems, questions and discrepant situations in order to engage the students' interest

A constructive learning setting differs greatly from one based on the traditional model. In the constructivist classroom, the teacher becomes a guide for the learner, providing, bridging, or scaffolding, helping to extend the learner's zone of proximal development. The student is encouraged to develop meta cognitive skills such as reflective thinking and problem solving techniques. The independent learner is intrinsically motivated to generate, discover, build and enlarge his/her own framework of knowledge.

Naylor and Keogh (1999**)** said, “The central principle of this approach is that learners can only make sense of new situations in terms of their existing understanding. Learning involves an active process in which learners construct meaning by linking new ideas with their existing knowledge.”

Driscoll (2000) explains that constructivist theory asserts that knowledge can only exist within the human mind, and that it does not have to match any real world reality. Learners will be constantly trying to derive their own personal mental model of the real world from their perceptions of that world. As they perceive each new experience, learners will continually update their own mental models to reflect the new information, and will, therefore, construct their own interpretation of reality

Jenkins (2000) defined, "Constructivism of different persuasion (hold a) commitment to the idea that the development of understanding requires active engagement on the part of the learner."

Posner (2004) defined, "Constructivism is the reflection on the innate ideas that yields the exploration of knowledge related to those ideas."

Hung (2006) defined, "Constructivism holds that knowledge is created through learner engagement in meaningful and authentic activities."

The constructivist classroom presents the learner with opportunities to build on prior knowledge and understanding to construct new knowledge and understanding from authentic experiences. In solving their Problems, students are encouraged to explore possibilities, intent alternative solutions, collaborate with other students or external experts, try out ideas and hypothesis, revise their thinking and finally present the best solution they can derive.

RELATED STUDIES

Caprico (1994) found in a study that better exam grades were obtained by students taught using constructivist methodology.

Young, Nastasi & Braumhardt(1996) conducted a study on use of constructivist design for learning and found a conceptual changes in classroom teaching regarding the nature of learning after implementing a constructivist design in a constructivist way.

Tynajala (1998) found that writing in a constructivist learning environment influenced learners at university level, not only on the accumulation of new information but also in terms of development of their thinking and communication skills. In other words, it enhanced creative thinking.

Siago and White (1999) found that constructivist model has been found to slightly influence students achievement in a positive way. The constructivist model is capable of getting students more involved in learning. Brad, (2000) concluded that constructivist instruction showed higher degree of academic achievement than students in the traditional (lecture) instruction in all conditions.

Yildrum (2001) found that learner outcomes were similar in their post-test results in constructivist and traditional classroom instruction and also found that retention test scores showed favorable significant difference when they were compared to the scores of students obtained through traditional learning instruction.

Kurt and Somchai, (2004) found that students used for their study participated more in the classroom activities and gained in content knowledge when a constructivist approach was used.

Oludipe Bimbola and Olidipe (2010) have found that with use of constructivist approach to learning, there is improvement in academic performance of junior Secondary School Students in integrated Economics at the junior secondary school level.

OBJECTIVES OF THE STUDY

- To find out the difference between the achievement level of post-test scores of experimental and control group of high intelligence.
- To find out the difference between the achievement level of post-test scores of experimental and control group of low intelligence.
- To find out the difference between the gains scores of experimental and control group of high intelligence.
- To find out the difference between the gains scores of experimental and control group of low intelligence.

HYPOTHESES OF THE STUDY

- H1: There will be no significant difference between the achievement level of post-test scores of experimental and control group of high intelligence.
- H2: There will be no significant difference between the achievement level of post-test scores of experimental and control group of low intelligence.
- H3: There will be no significant difference between the gain scores of experimental and control group of high intelligence.
- H4: There will be no significant difference between the gain scores of experimental and control group of low intelligence

SAMPLE

80 students of class 10+1 Khalsa senior secondary school kharar affiliated to Punjab School Education Board were taken to conduct the experiment.

RESEARCH DESIGN

The present study employed on the variable of instructional treatment which was studied at two levels namely experimental group (T1) Which was taught by constructive teaching approach, and control group (T2) Which was taught by traditional instruction. The variable of intelligence was studied at two levels i.e. high intelligence (I1) and low intelligence (I2) levels.

TOOLS USED:

The following tools were used to collect the necessary data:

- ❖ Jalota's test of general mental ability.
- ❖ Lesson plans developed on the basis of Constructive approach
- ❖ Achievement test in Economics prepared by investigator.

Achievement Test on 7 topics in Economics i.e. Money, Barter system, Banking, Demand, Supply from the syllabus of class 10+1 of 25 items, in which 5 items in multiple choice question, 8 items based on constructive approach

(i) Will you keep your savings in bank, if yes, give reasons.

(ii) Suppose you are a businessman and you have, to make daily many transaction in crores. Will you do your transaction with cheque. If yes, give reasons.)

5 items in matching and 7 items in fill in blanks. The reliability of the test was 0.79.

STATISTICAL TECHNIQUES USED

Mean, S.D. and t – test were employed to analysis data.

METHODOLOGY:

In order to realize the above said objectives, Experimental method was employed.

PROCEDURE:

Stage 1 Selection of the sample

The present study was conducted on 80 students of class 10+1 Khalsa senior secondary school kharar affiliated to Punjab School Education Board. Students were selected for experimentation after administration of intelligence test on 110 class 10+1 students.

Stage 2 Conducting the experiment

The experiment was conducted in three phases as given below:

Phase I : Administration of the pre –test.

This Phase involved the administration of the Achievement test in Economics to students of the experimental groups and control group.

Phase II : Conducting the instructional program.

The instructional treatment was manipulated in the form of teaching based on use of constructive teaching approach and traditional instruction method. The instructional treatment was given for 10 days to the two groups. The experimental group was taught through constructive teaching approach and control group was taught through traditional instruction. Same topics were taught to all groups. The instructions were conducted through well structured lesson plans on the content selected for treatment.

Phase III : Administration of the post –test.

In this phase, after completion of instructional programme, the students of both the experimental and control group for post test, achievement test in Economics was administered.

DATA ANALYSIS

H1 states that there is no significant difference between the achievement level of post-test scores of experimental and control group of high intelligence. The results pertaining to this hypothesis are presented in Table-I.

TABLE-I Mean, Standard Deviation, t-test of Achievement of Post-Test Scores of High Intelligence Students.

	Group	N	Mean	S.D.	t-test	Level of significance
A	EXPERIMENTAL GROUP	20	24.1	.96	5.33	Significant at both levels
B	CONTROLROUP	20	22.5	.97		

Table-I shows the mean of group A is 24.1and of group B is 22.5. Their SD's are 0.96 and 0.97 respectively. The t value works out to be 5.33, which is significant at 0.01 level. Thus, the results show that the hypothesis H1 is rejected i.e. there is no significant difference between the achievement level of post-test scores of experimental and control group of high intelligence is rejected.

H2 states that there is no significant difference between the achievement level of post-test scores of experimental and control group of low intelligence.

TABLE-II Mean, Standard Deviation, t-test of Achievement of Post-Test Scores of Low Intelligence Students.

	Group	N	Mean	S.D.	t-test	Level of significance
A	EXPERIMENTAL GROUP	20	18.8	2.24	3.44	Significant at both levels
B	CONTROLROUP	20	16.7	1.57		

Table-II shows the mean of group A is 18.8 and of group B is 16.7. Their SD's are 2.24 and 1.57 respectively. The t value works out to be 3.44, which is significant at 0.01 level. Thus, the results show that the hypothesis H2 i.e. there is no significant difference between the achievement level of post-test scores of experimental and control group of low intelligence is rejected.

H3 states that there is no significant difference between the gain scores of experimental and control group of high intelligence

TABLE-III Mean, Standard Deviation, t-test of Gain Scores of Experimental and Control Group of High Intelligence Students.

	Group	N	Mean	S.D.	t-test	Level of significance
A	EXPERIMENTAL GROUP	20	3.75	1.21	2.00	Significant at both levels
B	CONTROLROUP	20	2.95	1.46		

Table-III shows the mean of group A is 3.75and of group B is 2.95. Their SD's are 1.21 and 1.46 respectively. The t value works out to be 2.00, which is significant only at 0.05 level. Thus, the results show that the hypothesis H3 i.e. there is no significant difference between the gain scores of experimental and control group of high intelligence is partially rejected.

H4 states that there is no significant difference between the gain scores of experimental and control group of low intelligence.

TABLE-IV Mean, Standard Deviation, t-test of Gain Scores of Experimental and Control Group of Low Intelligence Students.

	Group	N	Mean	S.D.	t-test	Level of significance
A	EXPERIMENTAL GROUP	20	5	1.36	4.48	Significant at both levels
B	Control group	20	3.25	1.13		

Table-IV shows the mean of group A is 5 and of group B is 3.25. Their SD's are 1.36 and 1.13 respectively. The t value works out to be 4.48, which is significant at 0.01 level. Thus, the results show that the hypothesis H4 i.e. there is no significant difference between the gain scores of experimental and control group of low intelligence is rejected.

The results indicate that there is improvement in academic achievement of students in constructivist group on pre test and post test level were higher than

the scores at the pre test and post test levels compared to conventional group. The results of this study also supported by Caprico (1994), Siago (1999), Brad(2000) and oludipe(2010).

CONCLUSION

Students attained better when they taught through constructive teaching approach as comparison to those students who taught through conventional method.

Constructive approach is more useful for gain scores of low intelligence students. As it is shown that t value of gain scores of low intelligent students is more (4.48) than the value (2.00) of high intelligent students.

The students in experimental group actively participate in the classroom activities and show more effective result as compared to control group.

The results suggested that constructive teaching approach has overall positive effect on Economics achievement.

EDUCATIONAL IMPLICATIONS

- To develop values of small group work and cooperative development of ideas among students.
- To prepare the students to make sense of all information that they perceive and able to "construct" their own meaning (ideas) from that information.
- To prepare the students for problem solving and critical thinking skills.
- To create such a classroom environment where Knowledge can be shared between teachers and students.
- To enable students to explore new knowledge through setting connections with their previous knowledge.

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