Educational Quest 4(1): April, 2013: Page 7-11

Effects of Constructive Instruction on Students' Academic Achievement at Elementary School Level

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Paper No: 53 **Received:** 15 January, 2013 **Accepted:** 25 March, 2013

Abstract

The major purpose of the study was to find out the effect of traditional and constructivist instructional methods on students' learning achievement in the subject of social studies. It was an experimental study and for this purpose the researchers developed lesson plans for teaching of social studies. These lesson plans were tested through practical teaching within 8th grade level class by comparing it with teaching of same level group through traditional instruction. The data for the study was collected through administration of teacher made achievement test (TMAT) (pre and post setting of experiment). The major finding inferred from the study was that constructive instruction was more conducive for enhancing learning achievement of students than traditional instruction.

Keywords: Constructive instruction, traditional instruction, students' learning, elementary level, classroom environment, constructive lesson plans.

In constructivist teaching environment students are required to construct knowledge after having interaction with the teacher. Learning occurs when learner is actively involved in a process of understanding meaning of taught concepts and generation and construction of knowledge. Constructivist teaching motivates students as independent learner.

Jean Piaget is known for his theory of constructivism he articulated mechanisms learners internalize knowledge through it. He is of the view that individuals construct new knowledge from their own experiences processes of accommodation and assimilation are involved here. In assimilation the new experience is incorporated into an already existing framework without making a change in that framework. According to theory accommodation is the process to refrain one's mental representation of the external world to fit new experiences. Piaget (1977) affirms that learning occurs by an active construction of meaning, rather than by passive recipient. He explains that when we, as learners, encounter an experience or a situation that conflicts with our current way of thinking, a state of disequilibrium or imbalance is created. We must then alter our thinking to restore equilibrium or balance. To do this, we make sense of the new information by associating it with what we already know, that is, by attempting to assimilate it into our existing knowledge. When we are unable to do this, we accommodate the new information to our old way of thinking by restructuring our present knowledge to a higher level of thinking.

Constructive teaching philosophy believes on that knowledge is not given rather it is gained with the help of real experiences and those experiences have meaning and purpose for the learner and the exchange of perspectives regarding the experience with other people (Piaget and Inhelder, 1969; Vygotsky,1978).

In accordance with the constructivist theory all the learning due to prior knowledge child's mind is not a blank slate. When children develop a personal understanding which is based on their experiences regarding things and they are also supposed to reflect

on them. In the light of social constructivism each individual is a unique individual having unique needs and with unique backgrounds. The learner is also complex.

In constructivist class the teacher prompts as well as facilitates the discussion. The main concern and the focus of the teacher are to guide students by asking different questions in this way the students will develop their own conclusions. Empowerment of students is possible in constructive teaching classroom environment where students are motivated towards sharing of their ideas through questing answering session. Calkins (1986) is of the view that in most classrooms teachers do not ask allow students to ask questions, although asking questions is a challenging and important part of thinking and learning, especially if students are continually encouraged to ask more probing, more appropriate, and more effective questions.

The focus of constructivism is to foster critical thinking. The task of constructive teaching is to create motivated and active learner. Zemelman, Daniels, and Hyde (1993) argue that new ideas are very important in the learning of all the subjects. It is the responsibility of the teacher to create a learning environment for the learners so that the children may be able to construct their own ideas. "A Constructivist classroom is a student-centered classroom. The student-centeredness of a constructivist classroom is clearly apparent in a reader response approach to literature" (Rosenblatt, 1978).

Learning is active processes in these process learners are there to construct new ideas. And these ideas are based on their previous knowledge. Information is selected and transformed and then hypotheses are constructed decisions are made relying on the cognitive structure. Meaning is given by cognitive structure and organization is given to the experiences through it and individuals start thinking beyond the given information. It is the duty of instructor to encourage the students in order to discover principles.

Bruner (1966) states four aspects are important in the theory of instruction.(1) predisposition towards learning, (2)Structure of knowledge so it may be easily understood, (3) Presentation of material in an effective sequence, (4) rewards and punishments. Constructivist theory of Bruner (1960) is based upon study of cognition and it is general frame work for instruction. Constructivism deals with major concept that knowledge is constructed by learners and it is constructed through an active, mental process of development; builders and creators of meaning and knowledge are the learners themselves. Constructivism is drawn on the developmental work of Piaget (1977) and Kelly (1991).

Twomey Fosnot (1989) defines constructivism with reference to four principles:

1. learning depends on what we already know;
2. New ideas occur when we adapt and change our old ideas;
3. Learning is all about inventing ideas rather than mechanically accumulating facts;
4. Meaningful learning comes if we rethink old ideas and come to new conclusions regarding new ideas which conflict with our old ideas.

According T. Fosnot (1989) a productive, constructivist classroom consists of learner-centered, active instruction. In such a classroom, the teacher provides students with experiences that allow them to hypothesize, predict, manipulate objects, ask questions, research, investigate, imagine, and invent things. The teacher acts as facilitator in this whole process of learning.

Constructivist learning creates active and motivated learners. It also fosters academic achievement among the students. Zemelman, Daniels, and Hyde (1993) tell us that in all subjects areas learning involve construction of new ideas. They are of the opinion that the incorporation of constructivist theory in the curriculum is necessary; children can construct their own understandings in the environments which are created by teachers. A Constructivist Classroom is a Student-Centered Classroom. Negotiation is very important feature of constructivist classroom. It unites teachers and students in a common purpose. Boomer (1992, p. 14) explains that negotiating is very important when teachers talk how the new curriculum may be learned. He comments on the meaning of negotiating the curriculum:

Negotiating the curriculum refers to deliberately plan to invite students so that they may contribute to modify the educational programme, as a result the students will learn and there will be outcomes.

Cook (1992, p.16) explains why negotiating the curriculum with students is important because learners will work harder and better, and what they learn will mean more to them if they discover their own ideas, by asking their own questions, and then fighting hard to answer them for themselves. Here they must be educational decision makers. Out of negotiation comes a sense of ownership in learners for the work they are to do with it, and therefore a commitment to it. Teacher's job is to watch, listen and ask questions from students in order to know about how students learn in the light of the answers the teachers help the students to improve their learning.

Rosenblatt, 1978 called a Constructive Classroom as a Student-Centered Classroom. The student-centeredness of a constructivist classroom is clearly apparent in a reader response approach to literature. Recognizing the significance of the unique experiences that each reader brings to the reading of a selection of literature, the teacher in a response-centered approach seeks to explore the transaction between the student and the text to promote or extract a meaningful response.

As far as social constructivism is concerned it acknowledges the uniqueness of the individual as well as the complexity of the learner it but it also considers the individual the integral part of the learning process (Wertsch 1997).

Constructivism is not the name of a particular pedagogy. In fact, constructivism describes how learning happens. The theory of constructivism suggests that learners construct knowledge out of their experiences. Constructivism promotes active learning, or learning by doing.

Bruner's constructivist theory has a general framework for instruction and study of cognition is its basis. It has link with the child development the ideas outlined in Bruner (1960) are originated from a conference and the main focus is the learning of science and mathematics with reference to the learning of children. Bruner (1983) focuses on language learning in young children.

Statement of problem

The present study was an experimental study and its major purpose was to develop in students' academic achievement by teaching them through use and application of constructive teaching theory in8th1st class.

Objectives of the Study

Followings were the objectives of the study:

1. To measure differences in students' mean score in achievement test by teaching them through constructive instruction;
2. To compare scores of students' mean score on academic achievement test in pre and post setting of experiment;

Hypothesis of the study

1. There is significant difference in students' mean score in academic achievement taught through traditional and constructive instruction.
2. There is significant difference in mean score in teacher-made achievement test of students in control and experimental group pre and post setting of experiment.

Delimitation

The present study was delimited to following factors due to limited time and financial resources of researchers:

1. Conducting the experiment for the study in a public sector elementary school to which researchers had access.
2. Developing lesson plans based on constructive teaching principles only for the subject of social studies for 8th class.
3. Involving students of 8th in the experiment in the teaching of social studies.
4. Assessing students learning through teacher made test.

Procedure

It was an experimental study and therein pre- test post test control group design was adapted to measure academic achievement differences of students in control and experimental group before and after treatment period. All students of 8th were taken as sample for conducting experiment for the present study. Two teachers having 5-15 years teaching experience and having equal academic (Bachelor of Arts=B.A.) and professional qualification (bachelor of education =B.ED) were randomly selected and were randomly for teaching to control and experimental assigned to control and experimental group of students. Both groups were treated as separate classes.

The experimental teacher was given training about teaching through constructive lesson plans developed by the researchers based on constructive teaching principles. The atmosphere of experimental classroom friendly and students were given freedom to question and to express their views. This methodology was conducive for promotion of students' creative and constructive ideas and their academic achievement. The teacher maximum used constructed writing activities in the class. The classroom environment was conducive for creative thinking process as each student had opportunity to express his/her views freely. The atmosphere of the control group was traditional where the teacher used merely textbook reading method. The respective teachers of control and experimental group taught for period of one month. The students in both control and experimental group were given teacher made achievement test (TMAT) before start of the treatment period. At the end of treatment period students of both groups (control and experimental) were again given the same (TMAT pre-test) test as posttest. The analysis of result is given below:

Data Analysis

From above table no. 2 it is quite obvious that there is significant difference in the mean score of students of control and experimental group where we can see that mean score of experimental group is higher (59.13) than control group (49.67). It was concluded that students who were taught through constructive teaching showed better result on TMAT than students of control group who were taught through traditional instruction method. The difference shows that achievement level of the students of experimental group is better than control group; therefore, hypothesis of the study, there is difference in students' mean score of students in academic achievement taught through traditional and constructive instruction, is accepted.

Table 1: Results of TMAT pre-test of control and experimental group

Group	Condition	N	Mean	Standard
Deviation (SD)				
Control	Pretest	15	23.00	5.831
Experimental	Pretest	15	20.67	5.960

Table no.1 shows that there is no significant difference between mean scores and SD of both experimental and control groups in pre-test. Hence it was concluded that all students were similar at the beginning of the treatment period.

Table 2: Results of TMAT post-test of control and experimental group

Group	Condition	N	Mean	SD
Control	Posttest	15	49.67	11.425
Experimental	Posttest	15	59.13	12.766

Table 3: Comparison of results on TMAT post-test and pre-test of control and experimental group

Group	Condition	N	Mean	SD
Control	Pretest	15	23.00	5.831
Experimental	Pretest	15	20.67	5.960
Control	Posttest	15	49.67	11.425
Experimental	Posttest	15	59.13	12.766

Table no. 3 shows us comparison of performance of students in control and experimental group. It obvious from above table that students' performance in TMAT pre-test was to some extent same in control and experimental group, which shows that both groups were equal with reference to their learning achievement. However, we can observe that in the same TMAT, which was used as posttest, students' learning achievement in both groups (control and experimental) improved. However, it is obvious that students of experimental group get higher mean score in TMAT. On the basis of these result it was concluded that it was the impact and the effect of constructive instruction that students' learning improved more effectively than students of control group who were taught through tradition method. Hence, hypothesis stating that there is significant difference in mean score in teacher- made achievement test of students in control and experimental group pre and post setting of experiment is accepted.

Conclusion and discussion

The purpose of the study is to find out the effect of traditional and constructivist instructional methods on students' learning achievement in the subject of social studies. From statistical analysis of data collected through administration of teacher made achievement test (TMAT) (pre-test and post-test) it was concluded that through constructivist instructional method students actively involved and participate in learning process. In constructivist classroom the learning environment was more democratic as compared with the traditional methods. Students were viewed as creative thinkers in constructivist classroom and there was interactive learning environment. Teachers ask students point of views in order to understand their thinking. In the constructive classroom the teacher acts as guide and facilitator for the learners. Students were encouraged to enhance thinking skills and creativity through their creative writings and oral group discussion.

On the basis of data analysis it was obvious from results of students in control and experimental group that constructive instruction proved more helpful and conducive for enhancing students' learning achievement in the subject of social studies.

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