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Effect of Constructivist Based Training on Learning and Teaching: An Experiment in Classroom

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Abstract
The aim of the study was to study the effect of constructive based training approach on teachers' attitude and students' achievement. The study comprised 80 students of class VI from Nagar Palika Girls Middle School Balmiki Basti New Delhi and Nagar Palika Girls Sr. Sec. School, Havelock Square, New Delhi. A quasi experimental pre-test and post-test design was applied in the present study. A pre and post -test design was applied on students and teachers learning and teaching Hindi subject. A training of 200 hours of constructive teaching training was given to one group of 15 teachers, whereas a conventional teaching training was given to another grou of 15 teachers. The training for both the groups was completed in 8 weeks. After receiving the training both the groups used the approaches in their classes in which they had been trained. Therefore one group of students was taught the Hindi Subjects by using constructive approach where as another group was taught by using conventional approach of teaching. Teacher-made test with multiple-choice objective type questions was used to assess the learners' achievement in pre-test, and post-test was carried out just after two month of the experiment. Similarly teacher's attitude scale of S P Ahluwalia (1990) was administered before the training of teachers and also after completion of the training.The t values obtained revealed that constructivist method enhances the academic achievement and problem solving ability of the pupils. It was also found that both the group of teachers differs significantly on the teaching attitude.
Keywords: Constructive based training approach, teachers' attitude and students achievement

INTRODUCTION

National development is wide-ranging in scope and it is essentially the result of human efforts. Education is generally known as providing profitable experience. Learning is gained through experiences, and for efficient learning education is necessary. When we talk of giving education to our youth, we mean providing such experiences which may help them grow individually- physically, mentally, morally and spiritually. Every society has great expectations from its teachers. Education Commission (1964-66) makes it cogent thus, "Of all the different factors that influence the quality of education and its contribution to national development, the quality, competence and character of teachers are undoubtedly the most significant."

METHODS OF TEACHING – A HISTORICAL PERSPECTIVE

The development of methods of teaching is traced back to the methods of literary education followed in ancient Greece and China. Therefore, the most long-lived and widespread set of teaching methods are those associated with the study of language and literature (Singh and Jaimini, 1989). Memorisation and analogical reasoning were used as methods of teaching in the ancient literacy pattern of education. In ancient Greece, the Socratic technique of teaching i.e. the method of skilful inquiry was also very popular.

But the scientific approach to teaching methods began with the emergence of personalities like Comenius, Froebel, Pestalozzi and Herbert. Comenius (1592-1670) stressed five major elements for a scientific teaching method: it is the world of sense and experience and not the work of a teacher or a book that should be used as a starting point, nature as a phenomenon of biological and physical world can contribute significantly to the educational method, the content to be taught should be what the pupils are ready to take according to their mental age and strength, learning should proceed from activity which should be interesting, pleasant and relevant; and the teachers should encourage pupils to discover and learn by their own efforts.

A similar approach was also propounded by J.H. Pestalozzi (1746-1827) who emphasised that teaching methods should be in accordance with the development pattern of children's growth. Froebel (1782-1852) followed the same line and stressed the self-activity of child, taking into account the emotional as well as intellectual development of the child. But J.F. Herbert (1776-1841) propounded five instructional activities associated with teaching methods: preparation, presentation, association, assimilation and application.

Apart from the efforts made by the above mention thinkers to perceive the methods of teaching, these were also influenced by behaviouristic, humanistic and cognitive psychological orientations. The behaviouristic approach to instruction believes in the influence of environment on the learning behaviour of the learner. Among the behaviourists, the most important contribution to methods of teaching has been made by skinner, who stresses on a stimulus – response-reinforcement chain as the basic of any kind of learning. This has later birth to the famous programme instruction. The humanistic approach to instruction stress on the unique ness of individual learners and the methods of teaching depend on the quality of the interpersonal relationship that exists between the learner and the teacher.

The personalised system of instructions, and other form of individualised instruction, was developed by Fred S. Kellar (1968) computer assisted instruction, the most recent form of individualised instruction is an extension of programmed instruction and the personalised system of instruction. The third development in the area of instruction is group learning method. Group learning methods are oriented to develop more humanistic skills.

CONSTRUCTIVIST APPROACHES TO LEARNING-TEACHING

Formal education has somehow come to imply only the use of the traditional methods. Besides, these are also some other unconventional methods, the use of which is more an exception than the rule. These approaches nevertheless possess a powerful potential for imparting learning which is easily digestible by the learners, to become an internalized part of them. This is because most of them involve the active involvement of learners in the process of the acquisition of knowledge and other competencies. These methods also enrich the learners because they become participatory crusades of learning, where individuals are enabled to learn through the joint outcomes of their individual's efforts or the labour of their teams and the contributions that each one makes to the learning programme.

As the approaches are basically learner-based, the teachers stand to gain, by way of, saving on their time and effort in dishing out information to the students. This must therefore, be an additional motivation for the teachers to use them for economizing on their work load, and at the same time, successfully reaching their sole goal of ensuring abiding learning on the part of the students. Furthermore, the freedom and flexibility that these allow both to the teachers and the taught, does not shackle the learning process by any rigid rules or standardized procedures. This is something that often turns the frequently caused pain of learning into a joyful pursuit.

Constructivism implies a new kind of pedagogy where the emphasis is given more on what students do than what teachers do, and where there is a performance assessment of student learning rather than standardized achievement testing (Elmore, 1991b; Resnick and Klopfer, 1989; Weinberg, 1989).

Activity based approach in education also has become an appealing alternative to traditional process because it seems to address the criticisms of current educational practices, (NCF2005). It promises to deliver higher levels of literacy, multiple forms of literacy, self-reliance, cooperation, problem-solving skills, and satisfaction with school. In activity based teaching, students organize information, explore the learning environment, conduct learning activities, and monitor their own learning.

Using of different pedagogies by teacher as per the need of child and content like 'learner –centered' pedagogy means giving primacy to learners' experiences, their voices and their active participation. This pedagogy involves/requires a teacher to plan learning in keeping with the children's psychological development and interest, responding to their physical, cultural and social preferences and needs. School pedagogic practices, learning tasks and text we create for learners tend to focus on the socialization of the children and on the 'receptive' features of children's learning. Children's voices and experiences generally do not find expression in the class room. Instead teaching needs to nurture and build on their active and creative capabilities –their inherent interest and abilities for the fullest and possible development.

When students are actively involved in the lesson, they learn and retain the information. Therefore a true participation starts from the experiences of both learners and teachers when children and teachers share their experiences without any fear and reflect on them; provide opportunity to learn about others who may not be the part of their own social reality. If children's experiences are to be brought into the class room, it is inevitable that issues of conflict will need to be addressed. To use conflicts as pedagogic strategy is to be enable children to deal with conflict and facilitate awareness of its nature and its role in their lives.

Teachers play a vital role to pivot in any teaching learning situation. A well competent teacher by his implication make the teaching learning process so effective that it helps to achieve the decided goal of teaching with a better quality. An effective teaching learning process depends upon the personal competency of the teacher, professional qualification, his attitude towards students, level of motivation, interest and ability to interact with the parents and community members etc.

According to International Dictionary of Education, the term attitude may be defined as a Predisposition to perceive, feel or behave towards specific objects or certain people in a particular manner.

Attitudes are thoughts to be derived from experience rather than innate characteristics, which suggest that they can be modified. Le Roux (1994), defined attitude as, a positive or negative emotional relationship with or predisposition towards an object, institution or person.

Aiken (2000) describes attitude as a learned predisposition to respond positively or negatively to a specific object, situation, institution or person. Pointing to yet another definition, Breckler and Wiggins (1991), defined attitude as an enduring non-verbal features of social and physical world and they are acquired through experience and expert a directive influence on behaviour. Aizen and Fishbein (1977), explained that by understanding an individual's attitude towards something, one can predict with high precision the individuals overall pattern of behaviour to the object. These definitions suggest that attitude can be understood as an emotion that has an influence on the behaviour of human beings. Attitude affects people in everything they do and in fact reflects what they are, and hence a determining factor of people's behaviour.

SIGNIFICANCE OF STUDY

In the mid-1970s, researchers began to use social scientific theories to understand the classroom processes. By the 1980s, it was recognized that in classroom processes, learners' craft, that is , learning strategies, prior knowledge, skill and context of the learner are as important as teacher craft. During the 1980s and 1990s, constructivist movement gained momentum and researchers like Posner (1982), Driver (1983), and Novak (1984) conducted a number of studies on 'how children construct knowledge and how teachers can provide interventions to help children construct their concepts'. These researches also emphasise the active role of the learner in the teaching-learning process.

In recent years the quality of education in schools and especially the effectiveness of teaching and learning have drawn the attention of educational policy planners and practioners. Researchers conducted by NCERT and other research institutes in the context of minimum levels of learning (MLL), District Primary Education Programme (DPEP), Mid Term Assessment Surveys and Achievement Surveys indicate that attainment of students in primary schools is much below the desired levels. Similar is the situation at the secondary stage as reflected in the results of examinations conducted by various boards of examinations. These results reflect the poor quality of learning and teaching in our schools.

The Jomtien Conference (1990) discussed issues and challenges facing education and shared consensus on what is required to address these challenges to education. It suggested a change in approach to education, from 'individual to collaborative' and recommended a pedagogical shift from 'teacher centred to learner centred' approaches. The Jacques Delors commission report (1996) on 'Education For The Twenty First Century' proposed that the education system should be characterized by learning to be, learning to learn, learning to do and learning to live together.

Considering the changing needs of the learners and the society, the National Council of Educational Research and Training (NCERT) developed National Curriculum Framework (NCF) in the year 2005. The curricular content and its transaction must be relevant to the learners and should help them to become constructors of new knowledge and lifelong learners.

This study is a significant research, emphasizes on student's autonomy, acceptance of student's involvement, effective dialogues between students and teacher and students and students in the form of discussion related to the various concepts of problem solving. It has been observed during the review of the literature that a very limited work has been carried out in the field of language particularly in Hindi Elementary level with regard to constructivist approach. The areas so far explored had been science, math etc. Thus, the researcher in the present study tried to implement the constructivist approach in language teaching particularly Hindi Teaching at Elementary stage.

METHODOLOGY

The sample comprised 80 students of class VI from Nagar Palika Girls Middle School, Balmiki Basti, New Delhi and Nagar Palika Girls Sr. Sec. School, Havelock Square, New Delhi. A pre and post -test design was applied on students and teachers learning and teaching Hindi subject. A 200 hours of constructive teaching training was given to a group of 15 teachers, whereas a conventional teaching training was given to another group of 15 teachers. The training for both the groups was completed in 8 weeks and after receiving the training both the groups used the approaches in their classes in which they were trained. Therefore one group of 40 students was taught the Hindi Subjects by using constructive approach where as another group 40 students was taught by using conventional approach of teaching. Teacher-made test with multiple-choice objective type questions was used to assess the learners' achievement in pre-test, and post-test was carried out just after two month of the experiment. Similarly teacher's attitude inventory of S P Ahluwalia (1990) was administered on 30 teachers before and after the training of teachers.

OBJECTIVES

1. To investigate the difficulties of the students' in learning of Hindi subject at Elementary level.
2. To compare the academic achievement in Hindi of the learners in pre-tests and post-tests.
3. To study the effectiveness of the constructivist based approach and conventional approach on teachers' attitude
4. To study the effectiveness of the constructivist based approach on the learners' achievement in Hindi subject.

HYPOTHESIS

Ho_1 There is no significant difference in the score of the students in Hindi taught through Conventional Approach and constructive approach.

Ho_2 There is no significant effect of the constructivist based training approach and conventional training approach on teachers' Attitude.

Ho_3 There is no significant difference in the achievement score of students in Hindi subject taught through Conventional and Constructive Teaching approach.

ANALYSIS AND INTERPRETATION OF RESULT

Objective 1: To investigate the difficulties of the students' in learning of Hindi subject at Elementary level

The Investigator attempted to identify five broad areas of learners' difficulties. These areas were Comprehension, Writing, Punctuation, Pronunciation, Reading and Word Fluency.

Table 1

Difficulties faced by students Hindi Language in pre-test

S.No.	Areas	Area wise Items	Difficulty faced in no of Items	Percentage of Difficulties'
1.	Comprehension(Apathit Gadyansh)	18	14	77%
2.	Writing (Shrut Lekh)	17	12	70%
3	Punctuation (Vyakaran)	10	2	20%
4	Pronunciation(Uchharan)	8	3	37%
5.	Reading and Word Fluency(Vachan)	15	09	60%
Overall Difficulty		68	40	58%

Discussion: It may be seen from table -1 that students of primary level have more difficulties in the Comprehension i.e.77%, the next area of difficulties is writing i.e. 70% whereas in punctuation and pronunciation the difficulty was 20% and 37% respectively. The last observed area of difficulty was Reading and Word Fluency. i.e. 60%. Whereas overall difficulty in pretest was recorded 58%. Therefore it can be concluded that a number of item on Comprehensions could not be solved by the students. Therefore it was a base line of the study to give students pedagogical inputs to enhance their basic concepts in language.

Objective 2:. To compare the academic achievement in Hindi of the learners in pre-tests and post-tests.

Table 2 Improvement in Achievement in % in the Areas of Hindi Language in Post-test after treatment

S.N.	**Constructive Approach**				**Taught Through Conventional Approach**		
	Areas	Area wise Items	Difficulty faced by the students in items	Percentage of Difficulties	Area wise Items	Difficulty faced by the students in items	Percentage of Difficulties'
1.	Comprehension	18	2	11%	18	8	44%
2.	Writing	17	4	23%	17	8	47%
3	Punctuation	10	2	20%	10	4	40%
4	Pronunciation	8	3	37%	8	4	50%
5.	Reading and Word Fluency	15	03	20%	15	05	33%
Over All Difficulty		68	14	20%	68	29	42%

Table-2 reveals that after using Constructive Approach; it was observed that this group gained tremendous changes in Hindi language in compression to conventional approach. It can be seen that from table no 2 that only 20 % difficulty was recorded in their activity class. Whereas in conventional class the difficulty was twofold i.e 42%. However both the groups reduced their difficulty of solving the items of Hindi language, but the group taught through learning activities has been able to minimize their difficulties in various concepts of Hindi language.

Ho2 There is no significant effect of the constructivist based training approach and conventional training approach on teachers' Attitude.

Table 3 Post training score, Standard Deviation, and t-critical value on attitude Inventory of teachers' post trained through Conventional Approach and Constructive approach of teaching.

Variable	Group	Mean	S.D.	df	t-value	Significant Level
Teachers' Attitude	Constructive Approach	**267**	**11.08**	**28**	**2.86**	*
	Conventional Approach	**234**	**14.14**			

It may be seen that the mean score of teachers' attitude trained through Constructive Approach is 267as compared to 234 mean score of teachers' attitude trained through Conventional Approach. The standard deviation of on teachers attitude score trained through Constructive and Conventional Approach is 11.08 are 14.14 respectively. The t-value (2.86) is highly significant at 0.01 level. The result reveals that higher the score higher the teaching attitudes. Therefore the null hypothesis that there is no significant effect of the constructivist based training approach and conventional training approach on teachers' attitude is rejected. Therefore it can be concluded that constructive training approach has significant effect on the attitude of teachers over the traditional teaching method.

Ho_3 There is no significant difference in the achievement score Hindi subject of the students taught through Conventional and Constructive Teaching approach.

Table 4

Mean scores, Standard Deviation, and t-critical value of the students taught through Conventional Approach and Constructive approach of teaching.

Variable	Group	Mean	S.D.	Df	t-value	Significant Level
Achievement of students in Hindi Subject	Conventional Approach	**31.5**	**3.5**	**78**	**3.20**	*
	Constructive Teaching Approach	**42.5**	**5.6**			

*p< 0.01 level of significance

The mean score for Conventional Approach is 31.5 as compared to the mean score 42.5 of the Constructivist Approach. The standard deviation of Conventional Approach and constructive teaching approach is 3.5 are 5.6 respectively. The t-value (3.20) is highly significant at 0.01 level. Therefore the null hypothesis that there is no significant difference in the score of the students taught through Conventional Approach and constructive teaching is rejected.

The result clearly indicates that constructive teaching brought highly significant difference in the learners' achievement enrolled in elementary classes which at the important phase of cognitive development. Therefore it may be concluded that constructive approach has a positive and significant effect in the improvement of achievement in Hindi subject.

CONCLUSION

In the present time, students of our schools are becoming more and more varied in regards to thinking and learning. It is important that we should deliberately think about how to effectively teach our students. The implications of constructivism approach for how teachers teach and learn to teach are enormous. If our efforts in reforming education for all students are to be successful, we must give attention on students. Findings of the present study proved that constructivism based teaching is not only effective but interesting also. Similarly, constructivist teaching has been able to bring positive change in the attitude of teacher towards teaching approach.

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