RESEARCH ARTICLE

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Effectiveness of Constructivist Approach on Secondary School Learners' Achievement in Language Odia

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Abstract

Constructivist teaching learning is based on the belief that learning occurs as learners are actively in process of meaning and knowledge construction as opposed to passively receiving information. Constructivists is a learning theory that explains learning as constricting knowledge and understanding of the world after experiencing and reflecting on those experiences. The intend of the present research paper is to find out the effectiveness of constructivist-based teaching learning process on learners' achievement. In this connection an initiative was taken to implement 5E model of teaching concept in secondary school of Bhadrak district by the student teachers of diet, Bhadrak, Agarpada. Experiment design was employed with a purposive sampling procedure. The present research shows that constructivist instructions prove to be more effectiveness for improving learners' achievement in Odia language. It also helps to reduces individual differences and enables and all types of students to perform better.

Keywords: Constructivist Approach, Engage, Explore, Explain, Elaborate, Evaluate, Language achievement.

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Understanding Quality in Research: An Introduction

Constructivism is a theory of knowledge, a philosophy of learning. It is not a particular pedagogy, constructivist believe that human being are active information receivers. They use their existing experience to construct understanding them knowledge through the interaction of what they already know and believe and ideas, events and activities with which they come in contact (Cannella & reff, 1994, Richardson, 1977) constructivist learning is based student's active participation where they are "constructing" their own knowledge by testing idea and approaches based on their pair knowledge and experience. Applying these experiences in new situation they inculcate new knowledge and built their understanding and clarity on concepts.

The constructivist approach emerged the theories of learning by Psychologists like piaget, Dewey, Vygotsky, Skinner and Glaserfeld. There are two type of constructivism i.e., Piaget's cognitive constructivism; jean piaget's work is the basic of cognitive constructivism which discusses the mechanism of accepting a structured intellectual approach. In this method, the individual derives meaning. Teachers should facilitate cognitive change by presenting difficulties through a specific task, which poses dilemmas to students and social constructivism tasks two approaches situated cognition and socio-cultural cognition. Situated cognition recognized that individuals transform knowledge in the context of socio-environment change and interaction. The socio-cultural form of constructivism or meaningful integrated learning in which various subject areas are incorporated and used.

Honebein (1996) describes seven goals for the design of a constructivist environment such as-

- Providing experience with the knowledge construction process.
- Provide experience in and appreciation for multiple prospective.
- Embed learning in realistic and relevant contexts
- Encourage membership and choice in the learning process
- Embed learning in social experience
- Encourage the use of multiple modes of representation and
- Encourage self-awareness in the knowledge construction process.

A teacher is not an authority but a facilitator or guide who helps the earners. The teacher has to create a proper classroom environment to motivate, challenge, and think deeply to arrive at his conclusion. The teacher can use various strategies to promote and strengthen students capacity to think and to think about their thinking". The suggested strategies are-

(i) Ask thought provocative questions to students, KWL Strategy
   (a) Aware of what the child already know
   (b) What they want they want to learn and
   (c) What they have eventually learnt, PQ4R strategy It is on acronym for preview, Questions, Read, Reflect, Recite and review /and deal strategy acronym for identify, Define, Explore, Act and Look etc.

The five Es(5e) model attempts to transport the constructivist paradigm into the classroom. The objective of the model like all other model of constructivist framework when implement is to help the learner construct any concept in a way the teacher expects him/her to construct. The paradigm of the 5E model in terms of the scheduled teacher and student behavior is presented in Table 1.

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Table-1: Expected teacher and student Behavior as per the 5E Model

5E Definition	*Teacher Behavior*	*Student Behavior*
Engage		
• Generate interest • Access prior knowledge • Connect to past knowledge • Frame the idea	• Motivates • Creates interest • Taps into what students know or think about the topic • Raises questions and encourages responses	• Attentive in listening • Ask questions • Demonstrates interest in the lesson • Responds to questions demonstrating their own entry point of understanding
Explore		
• Experience key concepts • Discover new Skills • Probe, inquire, and question experiences • Examine their thinking • Establish relationships and understanding	• Acts as a facilitator • Observes and listens to students as they interact • Asks good inquiry-oriented questions • Provides time for students to think and to reflect • Encourage co-operative learning	• Conducts activities, predicts, and forms hypotheses or makes generalizations • Becomes a good listener • Shares ideas and suspends judgment • Records observations and/or generalizations • Discusses tentative alternative
Explain		
• Connect prior knowledge and background to new discoveries • Communicate new understandings • Connect informal language to formal language	• Encourage students to explain their observations and finding in their own words • Provides definitions, new words and explanations • Listens and builds upon discussion from students • Asks for clarification and justification • Accepts all reasonable response	• Explains, listens defines, and questions • Uses previous observations and findings • Provides reasonable responses to questions • Interacts in a positive, supportive manner
Extend/Elaborate		
• Apply new learning to a new or similar situation • Extend and explain concept being explored • Communicate new understanding with formal language	• Uses previously learned information as a vehicle to enhance additional learning • Encourages students to apply or extend the new concepts and skills • Encourages students to use terms and definitions previously acquired	• Applies new terms and definitions • Uses previous information to probe, ask questions, and make reasonable judgments • Provides reasonable conclusions and solutions • Records observations, explanations and solution
Evaluate		
• Assess understanding (Self, peer, and teacher evaluation(• Demonstrate understanding of the new concept by observation or open-ended response • Apply within the problem situation • Show evidence of accomplishment	• Observes students behaviors as they explore and apply new concepts and skills • Assesses students' knowledge and skills • Encourages students to access their own learning • Asks open-ended questions	• Demonstrates an understanding or knowledge of concepts and skills • Evaluates his/her progress • Answers open-ended questions • Provides reasonable responses and explanations to events or phenomena

Source: Beautiful 2002

5Es of Constructivists

5E's constructivism model is based on constructivist learning theory. This theory suggests that students learn best when they can work out explanations for themselves over time through various learning experiences structured by the teacher. Students use their prior knowledge to make sense of this experience and then connect new information and their prior knowledge. Teachers will organize each to help them make the connections between what they already know and new information. Primary connections unit into Five phases: Engage, Explore, Explain, Elaborate, and Evaluate.

Engage: This lesson mentally engages students with activities and questions. It captures their interest, provides an opportunity for them to express what they know about the concept or skill being developed, and helps them make connections between what they know and the new ideas.

Explore: Students carry out hands-on activities to explore the concept or skill. They grapple with problem or phenomenon and describe it in their own words. This phase allows students to acquire a common set of experiences to help their own words. This phase allows students to acquire a common set of experiences to help each other make sense of the new concept or skill.

Explain: Only after students have explored the concept or skill does the teacher provide the concept and terms used by the students to explain the phenomenon they have experienced. The significant aspect of this phase is that explanations follow experience.

Elaborate: This phase provides opportunities for students to apply what they have learned to new situations and develop a deeper understanding of the concept or greater use of the skill. The student needs to discuss and compare their ideas during this phase.

Evaluate: The final phase provides an opportunity for students to review and reflect on their learning and new understanding and new understanding and skills. Students also provide evidence for changes to their understandings, belief, and skills.

5Es based lesson activities provide opportunities for students to discover information for themselves and learn to mentor their family and peers about readiness, resilience and recovery.

The lesson are not sequential but provide a culminating approach to understanding the issues. When dealing with natural Odia language, teachers trainees can adapt the teaching activities to suit the level of their classes for better effectiveness of class-ix learner's achievement in Odia language.

Rational of the Study

Many countries like the USA, Italy, Turky, Nigeria and many other countries have adopted constructivist philosophy in teaching different subject classes. It has been noted that there are modes in the primary and secondary level; Constructivist is a new approach for teaching learning. Start like Odisha has been adopted in primary and secondary school level & in Teacher education institution for trainees for development of quality education in Odisha. Constructivism is an important learning approach in language achievement when classroom teaching practice is implemented by understanding how students learn. That is why the investigator has chosen the constructivist approach, which is a new instructional strategy and further, not much research has been conducted in this area in India. Hence all of the above reasons encouraged the investigator to undertake the present research study.

Statement of the Problem

- Effectiveness of Constructivist Approach on Secondary Learner's Achievement In Odia Language"

Objectives

- To observe the transactional strategies adopted by the B.Ed. course teachers trainees about engage, explore, explain elaborate and evaluate.
- To assess the scholastic achievement of the learners of class-ix in language Odia.
- To suggest remedial measures for better learners' achievement.

Research Question

- What is the level of competency of B.Ed teachers trainees to adopt 5E approach in the teaching-learning process?
- Does the constructivist approach has any positive effect on learners' achievement in language?
- Is it possible to take remedial measures for better teachers competency and learners' achievement?

Operational Definitions of the terms used Constructivist Approach

According to Bruner (1990),, the basic premise ofthe constructivist approach is that, an individual learner must activity build knowledge and skill and that the information exists within these built constant rather than in the external environment.

Language Achievement

Achievement is viewed basically as the competency of a person with a domain of knowledge and to measure achievement in different areas within the language is known as language achievement.

Design of the Study

The research study was an experimental design. A pre- and post-test design was used. The class IX students were treated on an experimental group for the study.

Sample and Sampling Technique Used

The Bhadrak district was selected for the study. Out of total secondary schools, only 4 schools were selected with purpose. There are 120 students included. Besides 20 B.ED. teachers, trainees were organized constructivist approach based classroom process in Odia language. The selection of the sample was made in purposive cluster sampling technique.

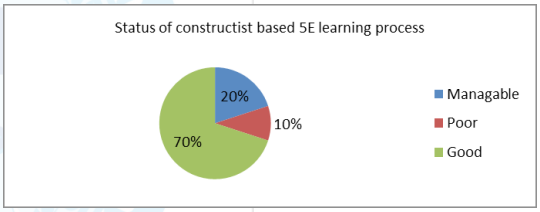
Procedure of the Study

The study was carried out in different phases. The phase-I selected school and administration of Pre-test. The phase-II develops and thinks of the tools and lesson plan in the 5E model, i.e. Engage, Explore, Explain, Elaborate, and Evaluate. Phase-III Implementation of strategies through technique students by the help of constructivist approach. The total duration of implementation of the study was 20 days. Phase-IV refers to the administration of post-test.

Statistical Technique Employed

The description statistical technique such as frequency, percentage and mean were used. For analysis of the collected data. Moreover graphical representation of result given in below for better understand of the result.

The analysis of Table 2 reveals that about 70% B.Ed trainee's status of Constructivist approaches based classroom process status in Odia language is good. Further, the analysis highlights that the teacher's trainees were followed 5E model of classroom transaction with proper planning and systematically organized in the class. The mean value of the Table 2 has been represented in pie chart.



The analysis of Table 3 reveals that the 5E model-based classroom transaction was effective as the mean value of each dimension of the observed mean higher than average value (i.e., 12.5). Hence the classroom process of B.Ed Pre-service teacher trainees was based on proper planning and systematic implementation of a constructivist approach in language class. A graphical representation has been depicted in below graph for clear understanding of the result (Figure 1).

The analysis of Table 4 reveals that about 75% of teachers trainee were more competent to transact constructivist approach in classroom for class-ix students in Odia language. This there is a positive effect of pre-service teachers training program on B.Ed. teacher trainee to develop capacity on 5E model-based classroom process.

The Table 5 reveals that the mean score (6.08) of post-test is higher than the pre-test mean score(4.5). There is a favorable difference between pre-test and post-test achievement levels in the Odia language. Hence there is a positive effect of constructivist approach on secondary school level learners achievement in odia language. A representation has been given below for better understanding (Figure 2).

The analysis of above Table 6 revals that more use of technology, TLM & reference materials develop communication skill, time management skill, pedagogical skill, decision making skill and leadership skill, planning for learning activities in text book, more participation in seminar, conference and workshop on constructivist approach, more emphasis for motivating students for thinking and inquiry method for solution and give scope for enhancing skill on

Table 2: Status of constructivist Based 5E Learning process

		No. of respondent			
SL NO	*Constructivist Interventions*	*Good*	*Manageable*	*Poor*	*Total*
1	Objective based 5e lesson plan prepared	15(75.00)	03(15.00)	02(10.00)	020(100.00)
2	Used TLM and reference materials	16(80.00)	03(15.00)	01(5.00)	020(100.00)
3	Step taken for capturing the students attention in engaged learning	15(75.00)	03(15.00)	02(5.00)	020(100.00)
4	Stimulate their thinking and help them to access prior knowledge.	16(65.00)	04(20.00)	01(5.00)	020(100.00)
5	Given time to students to think, plan, investigate and organize collect information.	14(70.00)	03(15.00)	03(15.00)	020(100.00)
6	The activities used by the student teacher is appropriate	14(70.00)	04(20.00)	02(10.00)	020(100.00)
7	Used reflective actives to clarify and modify their understanding	13(65.00)	05(25.00)	02(10.00)	020(100.00)
8	The teacher trainees encourage students to think, explore, Compare analyze & consolidate	14(70.00)	04(20.00)	02(10.00)	020(100.00)
9	The teacher trainees work like a co-learner/ facilitator in the learning process.	15(75.00)	03(15.00)	02(10.00)	020(100.00)
10	Assessment is integrated in the learning and feedback is given to the students.	14(70.00)	04(20.00)	02(10.00)	020(100.00)
Mean value		14(70.00)	04(20.00)	02(10.00)	20(100.00)

Figure in brackets indicates percentage

Table 3: Status of 5E model based classroom process in range score and mean value

S. No.	*Dimensions of 5 Ebased lesson plan*	*Range score of*	*Mean score*
1	Engage	5–25	20.42
2	Explore	5–25	18.65
3	Explain	5–25	18.57
4	Elaborate	5–25	19.44
5	Evaluate	5–25	19.76
	Mean value	5.25	19.37

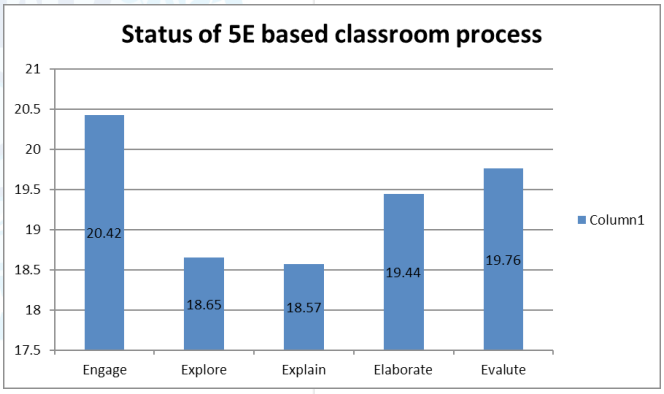


Figure 1: Status of 5E model based classroom process.

Table 4: (Classification of teachers with regard to their competency to transact in 5E model class)

Sl no	*Type of teachers*	*No. of teachers*	*Percentage*
1	More comptant teachers trainee	15	75%
2	Less competent teachers trainee	5	25%
Total		20	100%

co-operative, collaborative and enthusiastic process are the major action-oriented remedial measures for better effect of constructivist approach on learners achievement.

Findings of the study

- About 75% B.Ed teacher trainees were good to transact 5E model classroom process in odia language.
- The constructive approach-based classroom process of mean score about engage, explore, explain, elaborate, evaluate is higher than the average (50%) mean score.

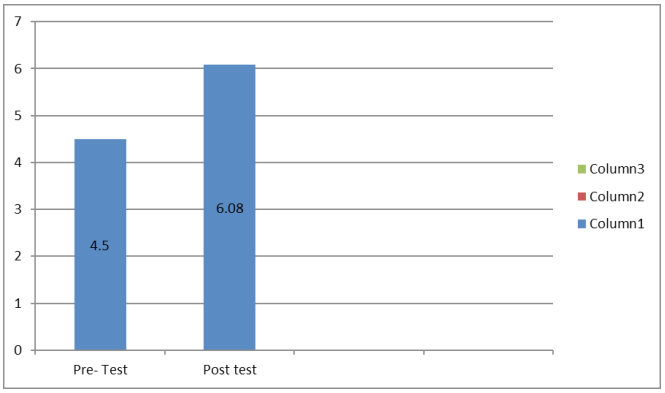


Figure 2: Status of Achievement of class- IX Students in pre- Test & post in odia language.

- About 75% pre-service B.Ed teachers trainee were more competent to transact 5E model-based classroom in odia language.

Table 5: Status of Achievement of class- IX Students in pre- Test & post in odia language

S. No.	*No.of student in Pre-test*	*No. of student in Pre-test*	*Mark secured in pre-test*	*No.of students in post-test*	*Mark secured in post-test*
1	1-3	44 (36.67)	2.04	03 (2.50)	3.00
2	4-6	63 (55.00)	4.31	26 (21.67)	5.8
3	7-10	13 (10.83)	-7.15	91 (75.83)	9.08
	Total	120 (100.00		120 (100.00)	-
	Mean	-	4.5	-	6.08

Figure in the bracket indicates percentage

Table 6: Action oriented suggested measures for better teacher's competency and learners achievement

S. No.	*List of measures*	*No.of respondents*	*%*
1	More emphasis should be given on students thinking, inquiry method and use variety of resources to find solution than memorization	13	9.29
2	Organization of seminar, conferences and workshops on constructivist approach on language.	25	17.86
3	Curriculum planners should plan for more learning activities in textbook constructivist approach	11	7.86
4	Teacher educators should assist the teacher trainee in developing new insight on these aspects	19	13.57
5	TTIs should take steps for development skill cooperative, collaborative, and enthusiastic process of learning	16	11.42
6	Take a step by the TTI for Development of communication skill, time management skill, pedagogical skill, decision making and leadership skills of teacher trainers	14	10.00
7	Sufficient TLM and reference materials should be prepared and used in the classroom process.	20	14.29
8	Encourage more use of Technology in the constructivist approach classroom process.	22	15.71
		140	100.00

- The post-test score was higher than pre-test score.
- The constructivist approach has a positive effect on secondary school level learners' achievement in Odia language.
- More use of technology, TLM and reference materials during constructivist approach classroom process, development of communication, time management, pedagogical, decision-making, and leadership skill through pre-service teachers training program and motivate the student teachers to participate in seminar actively. Conference and workshop on constructivist approach are major action-oriented remedial measures for better learners achievement through constructivist approach.

Conclusion

In light of the study's findings, it can be said that constructivist pedagogy is very effective in developing new knowledge on odia language at the secondary level. However, The success of this pedagogy presupposes that the teacher should not be well competent in constructivist approach but should also be dedicated enough to implement in the classroom for better new knowledge. This strategy is time-consuming and requires much motivation for teachers and administrators. The teachers should also be trained in the use of relevant technologies. And the use of ICT (information communication technology) in this regard. So there is a need for a massive orientation program for pre-service & in-service teachers and massive support from the administration and the government in this regard.

Suggestion

The following suggestion remedial measures are to be taken for better effectiveness of constructivist approaches on learner's achievement in a different learning area.

- The teachers should be given ample time for reflecting group discussion, and a minimum level of readiness should be provided to the student for learning.
- Teachers are not trained in constructivist methodology, so massive pre- service and in-service teacher training programs should overtake teachers trained in the constructivist methodology.
- Most elementary school teachers like ICT intervention competency, so the government should have a massive orientation programme for teachers on ICT used in the classroom.
- Textbooks and learning materials must be prepared to keep in view the constructivist principles.
- Schools are to be equipped with the learning materials and other material and other instrumental resources required to practicing constructivist approach in teaching.
- There is a need to develop a new evaluation strategy to measure the achievement mode possible due to the constructivist approach in classroom teaching.

Educational Implication

- This type of research study will be helpful for students to construct their knowledge from prior knowledge.
- As this approach focuses on innovation and democratic

classroom, so verities of learning experiences provide learners to construct his knowledge through hands-on-experience activities.

- It helps teachers to encourage constructivist learning and reflection processes.
- It will be helpful for the student to share their knowledge among peers and construct and reconstruct their knowledge related to the concept of the subject.
- The study emphasizes learner-centered learning where children can explore and discourage things independently.
- Last but not least, this type of study will be helpful for teachers, researchers, educationists, and planners to develop new plan action to implement this type of pedagogy at the primary, upper primary, and secondary school level.

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