

## EFFECT OF CONSTRUCTIVIST APPROACH ON THE ACHIEVEMENT OF ELEMENTARY STUDENTS' IN ENGLISH LANGUAGE

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### Abstract

The present study investigated the effect of constructivist approach on the achievement of elementary students in the English language. A quasi-experimental design was used in the study. Participants for this study were drawn via purposive sampling from an intact population of class VI students and were divided into an experimental group ( $N = 29$ ) and a control group ( $N = 29$ ). An achievement test, which served as the pretest, was administered prior to the intervention to both the groups. Furthermore, students with low scores in the pretest (low achievers) were distributed between the experimental and control group. The experimental group received instruction based on Interpretation Construction (ICON) Design Model. The control group received the traditional method of instruction. Post-test was conducted and mean scores were computed for the groups. Mean, Standard deviation,  $t$ -test and Analysis of covariance were used to arrive at the following conclusions: (i) Students taught through constructivist approach, ICON model, gained significantly higher score as compared to their counterpart taught by traditional method. Based on the ' $t$ ' value of 0.948 at 0.005 level with  $df$  56, there was no significant difference between the mean achievement of the experimental group and control group before the intervention. However, there existed a significant difference between the mean achievement of the experimental group and control group after the intervention ( $t$  value 4.271 at 0.001 level with  $df$  56). (ii) Low achievers learnt better through a constructivist approach and gained significantly higher score as compared to their counterpart taught by traditional method. There was also no significant difference between mean achievement scores of low achievers from both the groups before intervention ( $t$  value 0.638 at 0.001 level with  $df$  56). But the researcher found a significant difference between the mean achievement scores post-intervention ( $t$  value 3.707 with  $df$  15 at 0.001 level). Based on the above conclusions, it is recommended that the English language taught through ICON model leads to better achievement among the students.

**Keywords:** Constructivist Approach, ICON model, English Language, Elementary Students



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## INTRODUCTION

Education makes any child a rational person in the sense. It helps in the teaching-learning, improves the classroom environment, provides instructional strategies for increments among students, remedial actions for low achievers. The improved teaching methodologies are very important for all-round advancements of students. It was Dewey, Montessori, Piaget, Brunner and Vygotsky others who developed Constructivism as a student's centred approach than the teacher-centred.

Glaserfeld (1990) state that constructivism is known as a cognitive theory focuses on the role of the learner in the self-construction of knowledge and Judi and Jula (2002) refer to it as a learning theory offers an explanation of the nature of knowledge and how the learner learns. Zaitoon (2007) highlight it as a process of receiving involves learners' building of new meanings within the context of the current knowledge according to their experiences and learning environment. It was one of the most important revolutionary theories in the field of

education, as it focused on the knowledge and how to provide it to learners in gradual steps, and it receives a growing interest in contemporary educational thought, Aqeeli (2005) stresses its importance as a new theory in teaching and learning based on the idea of teaching for understanding, and the adoption of the learner as the centre of the educational process; the constructivist teaching is based on the principle that the learner is active and positive.

### ***Need for study***

Constructivist theory plays an important role in the field of education. In the present study constructivist approach on the ICON, the model has been followed to plan lesson-enabling students to construct new ideas on concepts based on their current and past knowledge. Adak (2017), Agarwal and Chawla (2005), Chang (2001), Folashade and Akinbobola (2009), Jameela (2010), Kim(2005) Lee and Fraser (2000) and Nayak and Senapathy (2010), are also in favour of constructivist approach as their investigation showed that it has a significant effect on the achievement of the learners. In the present study, the constructivist approach of learning environment makes English learning meaningful. It has helped in the development of language skills and enhanced vocabulary and increased the appreciation for the English language at the elementary level which is corroborated by the previous studies such as Al Muhaimed S.A(2013), Gutrie (2004), Gurol (2002), Hunter, D., Gambell, T., & Randhawa, B. (2005) Landi, N. (2010) Rexhaj, X. (2016), Sert (2008), Shah Hussain (2007), Sonmez, H. (2019) Zhang, L. J. (2008 ) . Hsu, L. (2013). National Curriculum Framework (NCF) 2005 has emphasized to follow the constructivist approach in the classroom so that students can construct their own knowledge and understand the concepts at the grass-root level. Ultimately, their achievement will be enhanced. However, in many parts of India teachers are still following the traditional method of teaching. The investigator wants to find out how far the constructivist approach has significant effects on students' achievement in comparison to the traditional method. Specifically, the study addresses the following objectives–

1. To study the effect of the ICON model, a constructivist approach, on class VI students' achievement in the English Language.
2. To study the effect of this constructivist approach (ICON model) on the achievement of low achievers of class VI students in the English Language.

The hypothesis of the study -

1. Students taught through the constructivist approach gained significantly high score as compared to the students taught through the traditional method in the English language.
2. Low achievers learn better through the constructivist approach gained significantly high score as compared to their counterpart learnt by the traditional approach.

### **Methodology**

#### ***Participants***

The participants in this study were students enrolled in class six at the English Medium School at Bhubaneswar. Out of four sections, two sections were randomly taken without disturbing the classroom situation for the research. Each group was composed of twenty-nine students of class six. In the control group, the researcher taught through the traditional method and in the experimental group the researcher taught through the constructivist approach. The low

achievers were selected with the help of quartile deviation as per the score of the achievement test in the pretest.

#### *Procedure*

As discussed above there were two groups and the intact classroom was taken into consideration for framing the experimental group and the control group.

The design of the study was the Quasi-Experimental design. The researcher used two types of tools -Instructional tools and Measuring tools for the study.

The researcher prepared a lesson plan based on the ICON Model for teaching in both groups. The necessary teaching aids like pictures, charts, audio-video aids related to the assigned topics were used in the present study as *instructional tools*.

For *measuring tools* the researcher prepared an achievement test for the study containing the multiple-choice question, fill in the blanks, matching, short-answer type and long answer type questions based on thought-provoking, problem-solving, critical thinking, creative thinking, understanding and application based on constructivist principles.

The procedure was as follows:

In the *pre-experimental phase*, the researcher used an achievement test of 50 marks was used as a pre-test. The NCERT English textbook was selected to prepare lesson plans for six months (Traditional method and Constructivist method).

In the *experimental phase*, the two groups were taught for a period of six months by two different methods. Lesson plans were prepared separately on the traditional method and ICON model of learning. After the Pre-test, the two groups were intervened by two different methods of teaching separately. The experimental group was taught by ICON model of teaching and control group was taught by the traditional method. All the prepared lessons were delivered through each method. The researcher used necessary aids like pictures, chart papers, audio-videos related to a particular concept for the study.

The ICON model represents seven stages of teaching and learning: Observation, Contextualization, Cognitive Apprenticeship, Collaboration, Interpretation Construction, Multiple Interpretations and Multiple Manifestations. A situation was created by the researcher in which students were motivated towards learning. The whole process was monitored by the researcher who worked as a facilitator to ascertain student's progress. After teaching, a post achievement test was administered to both groups. A comparison was made to find out the effect of the ICON model.

#### *Post – experimental phase*

After the completion of the intervention, post achievement test was administered by using the same question given in the pre-achievement test. A comparison was made on the post achievement test of experimental group and control group to find out the effect in achievement.

*Data analysis:* -Inferential statistics like 't' test and ANCOVA were applied to find out the results and inferences.

#### **Testing of Hypothesis**

**Hypothesis 1** Students taught through the constructivist approach will gain a significantly higher score as compared to students taught through the traditional method in the English

language. To test the above hypothesis a comparison of mean scores of the experimental group and control group was done through 't'- test.

**Table 1- 't'- test of two groups in relation to their achievement before the intervention.**

| Groups             | Number of students | Mean   | Standard Deviation | t- test | Degree of freedom |
|--------------------|--------------------|--------|--------------------|---------|-------------------|
| Experimental group | 29                 | 17.793 | 5.557              | 0.948   | 56                |
| Control group      | 29                 | 16.448 | 5.234              |         |                   |

The above table indicates that the mean score of the experimental group M=(17.793) is higher than the mean score of the control group M=(16.448). The mean difference in 't'- value (0.948) is not significant at 0.05 level with df 56. Therefore, there is no significant difference between the mean achievement of the experimental group and the control group before the intervention.

**Table 2- 't'- the test of two groups in relation to their achievement after the intervention.**

| Groups             | Number of students | Mean   | Standard Deviation | t- test | Degree of freedom |
|--------------------|--------------------|--------|--------------------|---------|-------------------|
| Experimental group | 29                 | 36.882 | 6.957              | 4.271** | 56                |
| Control group      | 29                 | 30.206 | 4.746              |         |                   |

\*\* significant at 0.01 level

Above table indicates that the mean score of experimental group M= (36.882) is higher than the mean score of the control group M=(30.206). The mean difference is significant in t-test t=(4.271) with df=56 at 0.01 level. Hence the directional hypothesis is accepted at 0.01 levels and significant difference exists between the achievement of the experimental and control group. Further, it is already mentioned that both groups are not equal at the beginning of the experiment. Therefore, to increase the reliability and verify our hypothesis analysis of covariance (ANCOVA) has been done. Application of ANCOVA equates both the groups prior to the treatment and thus helps invalid conclusion. Here, ANCOVA is performed by taking the pre-test score of the experimental and control group as co-variate and post-test score as the dependent variable. The summary of ANCOVA is shown in the following table:-

**Table 3 Analysis of co-variance table taking Pre-test score as the covariate**

| Source          | Sum of Squares | df | Mean Square | F        | P      |
|-----------------|----------------|----|-------------|----------|--------|
| Corrected Model | 3172.279       | 2  | 1586.139    | 547.605  | <0.001 |
| Intercept       | 7.389          | 1  | 7.389       | 2.551    | 0.116  |
| Pre-Achievement | 2626.003       | 1  | 2626.003    | 906.612  | <0.001 |
| Treatment/Group | 42.723         | 1  | 42.723      | 14.750** | <0.001 |
| Error           | 159.308        | 55 | 2.897       |          |        |

|                 |           |    |
|-----------------|-----------|----|
| Total           | 65442.000 | 58 |
| Corrected Total | 3331.586  | 57 |

\*\* significant at 0.01 level

The obtained 'F' value (14.750) = with df 1, 58 is significant at 0.01 level.

This interprets that there is a significant difference between the post-test score of the experimental and control group. Thus, it can be concluded that the directional hypothesis is accepted. Further, it can be concluded that the constructivist approach has significantly improved the achievement of students in language at the elementary level.

**Hypothesis 2** Low achievers learnt better through the constructivist approach and gained significantly higher score as compared to their counterpart taught by traditional method. To test the above hypothesis a comparison of mean scores of the experimental group and control group was done through 't'- test.

**Table - 't'- test of two groups in relation to their achievement before the intervention.**

| Groups             | Number of students | Mean   | Standard Deviation | t-test | Degree of freedom |
|--------------------|--------------------|--------|--------------------|--------|-------------------|
| Experimental group | 6                  | 11.545 | 2.736              | 0.638  | 15                |
| Control group      | 11                 | 10.833 | 0.752              |        |                   |

The above table indicates that the mean score of the experimental group M=(11.545) is higher than the mean score of the control group M=(10.833). The mean difference is not significant 't'- value (0.638) with df 15 at 0.05 level. Therefore, it is concluded that there is no significant difference between the mean achievement of low achievers of experimental group and control group before the intervention.

**Table 5 't'- test of two groups in relation to their achievement after the intervention.**

| Groups             | Number of students | Mean  | Standard Deviation | t-test  | Degree of freedom |
|--------------------|--------------------|-------|--------------------|---------|-------------------|
| Experimental group | 6                  | 40.00 | 5.991              | 3.707** | 15                |
| Control group      | 11                 | 30.00 | 5.352              |         |                   |

\*\* significant at 0.01 level

Above table indicates that the mean score of experimental group M= (40.00) is higher than the mean score of the control group M= (30.00). The mean difference is significant in t-test t=(3.707) with df=15 at 0.01 level. Hence the directional hypothesis is accepted at 0.01 and 0.05 level. Hence there is a significant difference between achievements of low achiever of experimental exists and control group.

Further, it is already mentioned that both groups are not equal at the beginning of the experiment. Therefore, to increase the reliability and verify our hypothesis analysis of

covariance (ANCOVA) has been done. Application of ANCOVA equates both the groups before the treatment and thus helps invalid conclusion. Here, ANCOVA is performed by taking the pre-test score of low achiever of the experimental and control group as co-variate and post-test score as the dependent variable. The summary of ANCOVA is shown in the following table:-

**Table 6 Analysis of co-variance table taking Pre-test score as a covariate**

| Source          | Sum of Squares | df | Mean Square | F        | P      |
|-----------------|----------------|----|-------------|----------|--------|
| Corrected Model | 4194.264       | 2  | 2097.132    | 722.755  | <0.001 |
| Intercept       | 5.636          | 1  | 5.636       | 1.942    | 0.168  |
| Pre Achievement | 3795.097       | 1  | 3795.097    | 1307.941 | <0.001 |
| Treatment/Group | 43.812         | 1  | 43.812      | 15.099** | <0.001 |
| Error           | 191.504        | 66 | 2.902       |          |        |
| Total           | 70943.000      | 69 |             |          |        |
| Corrected Total | 4385.768       | 68 |             |          |        |

\*\* significant at 0.01 level

The obtained 'F' value (15.099) = with df 1,69 is significant at 0.01 level. This interprets that there is a significant difference between the post-test score of the experimental and control group. Thus, it can be concluded that the directional hypothesis is accepted. Group discussion, peer interaction, teacher's encouragement for analysis has enhanced the performance of low achievers of the experimental group.

### Results and Discussions

*Findings related to the achievement of students in English at the elementary level.*

Students taught through the constructivist approach gained significantly higher score as compared to their counterpart taught by traditional method. There exists a significant difference between the mean scores of the student's experimental group and control group before the intervention. From the descriptive analysis, it was clear that mean of pre-test score of the experimental group was slightly higher than the mean of the control group.

There exists a significant difference between the mean score of students in the experimental group and the control group in post-test. From the descriptive analysis, it was clear that the mean score of the experimental group was slightly higher than the mean of the control group.

*Findings related to the achievement of students in English at the elementary level.*

Low achievers learnt better through a constructivist approach and gain significantly higher score as compared to their counterpart learnt by traditional method. The constructivist approach provides essential conditions for low achievers to improve their learning. The comparative analysis of the mean score of the experimental group and the control group in the post-test revealed that there exists a significant difference between the experimental and control group.

## CONCLUSION AND EDUCATIONAL IMPLICATIONS

- In the classroom, teachers should let students carry out their investigations and take the role of a facilitator versus guiding them at every step. Teachers will guide so that students use their prior knowledge to understand something new or use their previous experiences as foundations upon which new knowledge or understanding is built.
- Constructivism helps in the construction of knowledge for the students and leads to active participation among students in learning. Teachers should structure their class for active learning activities where students learn any concept via doing some hands and minds-on activity versus being a passive recipient of information via lecture.
- A constructivist approach such as ICON model of learning brings better academic achievement of students; School administration should provide all required resources to help teachers practice the ICON model of instruction. Teachers should implement instructional strategies in alignment with constructivism for effective student learning.

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