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EFFECTIVENESS OF 7E MODEL ON STUDENTS COMMUNICATION PROCESS SKILL IN BIOLOGY

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ABSTRACT

The present study is conducted to find out the effectiveness of 7E Model on Communication process skill in Biology among IX standard students. An equivalent two group pre-test and post-test design is adopted. The total sample comprises of 100 students. Purposive sampling technique is used for the present study. The experimental group was start with 7E model and control group with conventional method of teaching Biology. The 't' test is used to analyze the data. The study reveals that the 7E Model has an effect on Communication Process skills in Biology.

KEYWORDS : *7E Model, Basic Process Skill, Communication Process Skill.*

INTRODUCTION:

Science means to know about nature, explore the secrets of life leading to new inventions. It is a method of investigating the truth of life and also to find out the relationship between cause and effect. Science is both process and product. The product of science refers to acquisition of scientific knowledge and process of science involves scientific attitude, scientific aptitude, scientific interest and scientific method. The teaching of science must go beyond acquisition of scientific knowledge. In this aspect the process of doing science needs to be strengthened. So, the science process skills play an important role in science education. According to National Curriculum Framework 2005, Good science education is true to the child, true to life and true to science.

SCIENCE PROCESS SKILLS

Science Process skills are known as procedural skills, experimental and investigating science habits of mind or scientific inquiry abilities (Harlen, 1999).

Thus, scientific investigation refers to finding out answers to questions. Therefore, teaching of science must aim to develop science process skills among the learners. The acquisition of skills in science will help them to face future life.

The science process skills are classified into basic process skills and integrated process skills. Further, basic process skills are classified into observation, measurement inference, prediction, classification and communication. Among this communication basic process skill is selected for the study.

COMMUNICATION

Communication means sharing of information with others. In order to describe about nature based on observation there must be clear and effective communication which results into better understanding of nature. Communication can happen in different forms i.e., verbal, non-verbal, written or by using graphs, charts, models, diagrams, maps and other visual representatives. Communication as a skill need to be developed among the learners through the teaching of science so that they can become good communicator in their lives.

7 E MODEL

7 E Model is proposed by Arthur Eisenkraft which is an expansion of 5 E Model. it includes :

- **Elicit:** assessing the prior knowledge of learners.
- **Engage:** refers to assessing prior knowledge and also creating zeal for new learning.
- **Explore:** includes the exploration of learning experiences provided to them.
- **Explain:** students are allowed to explain based on their exploration.
- **Elaborate:** application of knowledge in different situations.
- **Evaluate:** happens through formative and summative.
- **Extend:** the acquired knowledge is applied in new context and not restricting for simple elaboration.

There are different methods, approaches, techniques and models of teaching science. The researcher has selected 7 E model to teach Biology subject as it works on principles of constructivism.

REVIEW OF RELATED LITERATURE

Basant Kumar and Priyaranjan Dash (2015) Conducted study on Effectiveness of Activity Method on Process skill in science. The study was experimental in nature where two groups were randomly selected. Experimental group was taught with activity method and control group with traditional method of teaching. Probability sampling technique is employed and the size of the sample is 530. The students studying in 7th standard of Bilaspur were selected. The performance based testing tools were used to evaluate students. The study reveals that the experimental group mean scores are significantly higher than those of control group.

Hilal Aktamis and Omer Ergin (2008) investigated on The Effect of Scientific process skills Education on Students. Scientific creativity, Science Attitudes and Academic Achievements. The purposes of the study is to find out the effect of scientific process skills education on students and also to promote their scientific creativity, attitudes towards science and achievement in science. A pre-test and post-test design is adopted. The students from 7th grade of an elementary school in Bucca District of Izmar Province, Turkey were selected. Totally 40 students were included in the present research. The researcher has collected data by using Achievement scale, Science Attitude scale and the Scientific creativity scale. The 't' test is used to analyze the data. It is found that the scientific process skills education increased the students achievement and creativity in science and there was no progress towards scientific attitude.

Afif Hafez Zeidan and Majdi Rashed Jayosi (2015) conducted research on Science Process Skills and Attitudes towards Science among Palestinian Secondary School students. The study aimed to find out the relationship between the Palestinian secondary school students knowledge of science process skills and their attitudes toward science and also to determine the effect of gender and residence of these students on their science process skills and attitudes towards science. The students studying in all first secondary grade in the district of Tulkarm, Palestine were selected. A stratified random sample of 159 students (72 males and 87 females) were selected. The researcher has collected data by using Science process skills test and Attitudes towards Science Questionnaire. Furhter, the data is analysized by employing 't' test. The study revealed

that there was significant difference in science process skills due to gender favouring females and residence favouring village students. Therefore, there is no significant difference in their attitudes toward science.

OBJECTIVES OF THE STUDY

The following are the objectives of the present study.

- To study the effectiveness of 7 E Model on students Communication process skills in Biology.
- To compare the students Communication Process skills taught through 7 E Model and Conventional method of teaching Biology.
- To develop the lessons in Biology for a selected unit of IX standard based on 7 E Model.

HYPOTHESES

1. There is no significant difference between the pre-test scores of experimental and control groups with reference to communication process skill in Biology.
2. There is no significant difference between the students communication process skill taught through 7 E Model and Conventional method of teaching Biology.

DESIGN OF THE STUDY

The present study is of experimental in nature where a randomized two group equivalent pre-test and post-test experimental design is used. In this design students were administered with pre-test before the treatment and post-test at the end of the treatment.

SAMPLE

Purposive sampling technique is employed for the present study. The students of IX standard studying in private English medium school were selected. The students were randomly assigned to experimental and control groups. The experimental and control groups consists of 50 students each respectively.

TOOLS

- Lesson transcripts based on 7 E Model in Biology.
- A process skills test in Biology is developed by the researcher used as pre-test and post-test.
- G.C. Ahuja's group Test of Intelligence developed by Dr. G.C. Ahuja, a verbal test is used for equating the experimental and control groups based on the scores.

Statistical Technique

- t - test

Data Analysis

Hypothesis 1: There is no significant difference between the pre-test scores of experimental and control groups with reference to communication process skill in Biology.

Table 1: 't' value of Experimental and Control groups with respect to Communication Process Skill

Test	Group	N	Mean	SD	't' value	Sig
Pre-test	Experimental Group	50	1.72	0.991	0.227	0.821
	Control group	50	1.68	0.891		

Table-1 reveals that the obtained 't' significance value is 0.821 (t=0.227, df=49). Since 'p' value is greater than 0.05, the null hypothesis is accepted. Therefore, it is concluded that both groups do not differ significantly with reference to communication process skill in Biology.

Hypothesis 2: There is no significant difference between the student communication process skill taught through 7 E Model and Conventional method of teaching Biology.

Table 2 : 't' results of Experimental and Control Groups with reference to Communication Process Skill

Test	Group	N	Mean	SD	't' value	Sig
Post-test	Experimental Group	50	2.34	1.002	2.608	0.012
	Control group	50	2.02	0.820		

Table-2 shows that the obtained 't' significance value is 0.012 (t = 2.608, df = 49). Since 'p' value is less than 0.05, the null hypothesis is rejected and alternate hypothesis is accepted i.e., there is significant difference between the students communication process skill taught through 7 E Model and conventional method of teaching Biology. Thus, it is inferred that both groups differ significantly after the treatment.

FINDINGS OF THE STUDY

- ✓ The 7 E model is more effective on the students Communication Process skill in Biology which is evident from the pre-test and post test scores.
- ✓ The students taught through 7 E Model scored higher than those with conventional method of teaching Biology.

CONCLUSION

The present study determines the effect of 7 E Model on the students Communication process skill in Biology. It is found that scores of the ninth standard students of experimental group is significantly higher than those of control group which reveals that the students of experimental group were given hands on experiences for learning.

EDUCATIONAL IMPLICATIONS

- ✓ The study reveals that the 7 E model of teaching Biology is more effective in the communication process skill.
- ✓ By using 7 E model as one of the constructivist based instructional strategy proved more effective in evaluating communication process skill in Biology.
- ✓ The present study is conducted on small sample which reflects the existing practices of educational system especially secondary school.
- ✓ 7E Model of teaching help's the learner to construct new knowledge and resulted in effective learning.
- ✓ For the teacher 7 E model help to give indepth knowledge to the learner.
- ✓ It strengthens the teachers in providing wide opportunities for students learning and makes the learner to go beyond classroom experiences.

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