
CHAPTER - V

FINDINGS, DISCUSSIONS, SUMMARY, IMPLICATION, SUGGESTIONS AND CONCLUSION

5.0.0 INTRODUCTION

The results, summary, implications and conclusions presented in the current chapter are based on the previous chapter. The chapter four presented data analysis, results and interpretations. Objective-wise interpretation of results and the related discussions are presented, below, under different headings in this chapter. Summary, implications and suggestions for further studies are also part of this chapter.

Objective-wise findings and interpretation of results with discussions have been presented in this section under different sub-headings.

5.1.0 FINDINGS OF THE STUDY

Objective-wise findings are presented in Chapter – IV, under different sub-headings. Findings flow from the interpretation of data presented in the previous chapter. Findings of the present study are presented below:

- The Learning Progression of Students of Experimental group is higher than that of Control group students of class IX of Kendrapara district, Odisha.
- The Attitude towards Science of Students of Experimental group is nearly Similar to that of Control group students of class IX of Kendrapara district, Odisha.
- There is a significant effect of Treatment (Constructivist Approach) on Achievement in Science Subjects of Class IX students as compared to traditional methods.
- There is no significant effect of Gender on Achievement in Science Subject of Class IX students.
- There is no significant interaction effect of Treatment and Gender on Overall Achievement in Science Subject of Class IX students.

5.2.0 LEARNING PROGRESSION IN SCIENCE OF CLASS IX STUDENTS

The Constructivist Approach was found to be effective in terms of Achievement of students in Science Subject with Achievement test scores. The finding was supported by Dr.P.B. Kavya Kishore (2013), Laffey, J., Tupper, T., Musser, D., & Wedman, J. (1997), Bransford et al. (2000), Mustafa Cakir (2008), Dr. Rajendra Kumar Shah (2019) Donald Lukman indicated the value of practice of teaching in developing Student's learning.

The developing Leaps involves assessment design in order to obtain evidence of learning. From the different approaches, it could be important to determine what grain size will be the optimal for gathering learning evidence. Again, the first step in the development of Leaps could define what assessment will be more suitable. In the escalated model, for example, a fine grain assessment could be more illustrative of learning because it will be focused on individualized learning, which is useful for an approach that starts on the classroom setting. Within the landscape approach a bigger grain size would be more illustrative of the learning path because it provides evidence across grades and content-domains, giving to the approach an opportunity to link expectations to standards development. Assessment is central for intermediate levels to be defined and characterized. The grain sizes to which devote the Leaps development efforts will also play a role in the applicability of the progression. Whereas a bigger grain size could inform curriculum and standards development, a finer grain size could help enhance teaching practices. Tai and Sheppard (2009) described their work on developing a learning progression for students' understanding of combustion. Based on the responses, the researchers found six patterns of progression in students' understanding of combustion, called 1) gradual increase, 2) stepwise increase, 3) persistent misunderstanding, 4) early misunderstanding, 5) varied misunderstanding, and 6) reverse-V understanding. They used a cross-age design and a questionnaire having knowledge and cognitive abilities questions applied to 1,237 Taiwanese students from grades sixth through twelve and university students. As mentioned in the Chapter - I, First, children learn to sit on their own, then crawl, then stand and then take some steps before taking off and running. Not all children will do this of course—some may go from sitting to standing without crawling in between! Also, not all learning develops in a nice predictable linear pathway—sometimes a separate, but inter-related area of learning needs to act as a trigger for us in our current learning. Not with standing, in many areas of learning, such as science, we have been able to use knowledge of learning paths in traditional academic learning to structure curricula. The results of the present investigation are an outcome of the comparison of two types of methods used to teach the students those are Constructivist Approach and Traditional method of teaching. Consequently, it may be concluded that Constructivist Approach used as a teaching strategy led to the results observed in this study.

5.3.0 ATTITUDE TOWARDS SCIENCE OF CLASS IX STUDENTS

The Constructivist Approach was found to be ineffective in terms of Attitude towards Science of Students with Attitude scores. Daisy Nambikkai and John Louis Manoharan (2014)¹¹ had studied the attitude towards science of secondary school students in Puducherry region. The researchers reported the relevance of learning by doing method with theoretical learning from

the secondary school stage. The percentage of the respondents (N=76) with respect to Scientific attitude by Normal Probability Curve (NPC) method in the order as low 5% (n=4), average 37% (n=28) and high 58% (n=44). Similarly for Scientific aptitude among secondary school students were found in the order as low % (n=1), average 9% (n=7) and high 90% (n=68). The percentage of Scientific knowledge of the secondary school students in the present study was found to in the order as low 0% (n=0), average 70% (n=53) and high 30% (n=23) respectively. The graphical representation of NPC is shown in the Figure-1 and the overall scores obtained by the respondents were illustrated in the Figure-2. The t-scores and F-scores (calculated and table values) are shown in the table (2-7) to prove/disprove the framed hypotheses. Bindia Rani(2018) stated Science as an important part of our life for which it has made an integral part of curriculum. Teaching of science is not purposeful if it fails to develop the scientific knowledge, scientific attitude, various skills and methods to solve problems in day-to-day life. Science has helped in developing various values like intellectual value, practical value, cultural value, vocational value and democratic value which make a one complete human being of better value. Sometimes, there is more achievement in science among students, but they do not possess positive scientific attitude. In her investigation, she concluded no significant relation between science attitude and achievement in Science between the Students. From Chapter – I, Scientific thinking and attitude towards science is necessary to develop scientific knowledge. Scientific attitude may be an act in a certain way or expression of feelings or thoughts. Honesty, objectivity, respect for evidence, open-mindedness, critical thinking, questioning attitude, logical thinking, tolerance of uncertainty, willingness to change options etc are the attributes of scientific attitude. The results of the present investigation are an outcome of the comparison of Attitudes of students towards science between two groups of students studying through different methods those are Constructivist Approach and Traditional method of teaching. it may be concluded that Constructivist Approach and the Traditional Method of Teaching used as teaching strategies led to the results observed in this study. Therefore, it may be stated that Attitude of Students towards Science was independent of their achievement in science.

5.4.0 EFFECT OF TREATMENT ON ACHIEVEMENT IN SCIENCE OF CLASS IX STUDENTS

The effect of Treatment on Achievement in Science of Class IX students was found significant by taking their Pre-test scores of Achievements in Science as a covariate. Therefore, it may be said that Constructivist Approach made a significant difference in the Achievement in Science language of Class IX students. The study by Ivan Salinas (2009) supported this finding. He

identified two approaches for learning progression. 1st approach constructs a progression in terms of levels, being its extreme the lower anchor and upper anchor and having a strong empirical component in the depiction of the progression. The 2nd approach has stronger analytical component to define and construct the progression, presenting connections among elements of the progression by levels and threads while resting mainly in previous research for validating its analysis of progress on learning. The Achievement score was added to calculate the Overall scores. Science offers a powerful platform for building confidence, developing communication skills, and making sense of the world around us. Science also involves a lot of communication with other people and develops patience and perseverance in Student. Students were taught through Constructivist Approach, constantly, throughout the interventions to make conscious improvements. After forty-five days of interventions, a significant difference was observed when compared to the Control group of the study. Therefore, it may be stated that Constructivist Approach made a significant difference in the Achievement in Science of Class IX students as compared to Traditional method of teaching.

5.5.0 EFFECT OF GENDER ON ACHIEVEMENT IN SCIENCE OF CLASS IX STUDENTS

The effect of Gender on Achievement in Science of Class IX students was not found significant when their pre-test scores of Achievements in Science was taken as covariate. Various Surveys reported that Men participated more in an active learning course in science, technology, engineering and math, while women reported lower perceptions of their scientific abilities, were more aware of gender identity and more likely to feel judged based on gender. In the present study, two aspects are taken into consideration, those are Male and Female and their achievement score was calculated. All the students were taught through Constructive Approach and allowed to make their own progress individually. Therefore, it may be said that Gender did not produce a significant differential effect on the Achievement in Science of Class IX students when their pre-test scores of Achievements in Science was taken as covariate.

5.6.0 INTERACTION OF TREATMENT AND GENDER ON ACHIEVEMENT IN SCIENCE OF CLASS IX STUDENTS

The interaction between Treatment and Genders on Overall Achievement in Science language of Class IX students was not found to be significant when their pre-test scores of Achievements in Science was considered as covariate. The results indicated that the Boy and Girl Students were benefitted to the same extent with the both modes of teaching. Gender was not noticed in the said interaction of. But, the mean Achievement scores of Students with different Genders

of Experimental group were higher than the mean Achievement scores of Students with different Genders of Control group. The mean Achievement in Science of Girl Students of Experimental group was higher than the Boy Students belonging to Control group. The mean Achievement of the Students did not differ much. Therefore, it can be said that the effect of Treatment on Achievement in Science language is independent of the Genders of students. This result shows that no significant interactional effect of Treatment and Gender was found in the present study.

5.7.0 TO SUM-UP

5.7.1 INTRODUCTION

Education is an important aspect that plays a huge role in the modern, industrialized world. People need a good education to be able to survive in this competitive world. Modern society is based on people who have high living standards and knowledge which allows them to implement better solutions to their problems. The children of today are gearing up to become adult citizens of tomorrow. The growth is parallel to the future of our country, reflected through quality of the present education system. A school must stimulate curiosity in the young, impressionable minds and equip them with tools to be better human beings. It is widely accepted that the learning process is instrumental in shaping one's personality and the way he/she deals with situations of life. The shift of thoughts from bookish knowledge to knowledge of life, in schools, has brought forth a sea of change. People have warmed up to the idea of education being the key to a well-rounded development instead of just a mean to acquire degrees and monetary success in life. Education must facilitate the cultivation of a healthy thought process and groom our cognitive abilities. In the present competitive world, education is a basic necessity for human beings after food, clothes and shelter.

The purpose of the study was to examine how explicit progression in learning strategies impacted IX grade science classes. Four objectives were investigated. The first one is about the learning progression in science of class IX students of Kendrapara district. The second one asked about the attitude towards science of class IX students of Kendrapara district. The third one was about treatment, gender and their interaction on learning progression in science of Kendrapara district. And the fourth one asked about treatment, gender and their interaction on attitude towards science of Kendrapara district.

For this study, student achievement was measured using pre-test/post-test design. The pre-test data were collected from students' VIII class yearly science tests score from the school register.

The post-test data were collected from students' achievement Science test scores taken by the investigator. Other materials that were used to support the treatment implementation and to monitor the progress of treatment were created.

After permission was taken from the school, the investigator was allowed to take the class of class IX student in one school. One section student was taken as Experimental group and other section students were taken as Controlled group. The Experimental group was taught through a Constructivist approach and the Control group was taught through a traditional method of teaching. Treatment of 45 days was given to both the groups as per the respective methods mentioned above. Before being given the treatment for 45 days, the attitude towards science scale -Prof. Abinash Grewal (1978) was administered to both the groups. Previous year science achievement marks of the students of respective groups were collected from the school register, The Experimental group students were encouraged to continue the Constructivist approach strategies as they were appropriate.

Along with the treatment an achievement test was taken and a standardized attitude test was taken which was developed by Prof. Abinash Grewal (1978).

Finally, statistical tests were used to determine the comparability of the Experimental group and Control group. The instruments were tested to ensure that they produced reliable data. Then the Science test scores, achievement test scores and survey responses were analysed and reported.

5.7.2 STATEMENT OF THE PROBLEM

Learning is simply the process of adjusting our mental models to accommodate new experiences. The term refers to the idea that individuals, through their interaction with the environment, construct their own knowledge and meaning (Fosnot, 1996). Construction indicates that each learner individually and socially constructs meaning as he/she learns. Constructing meaning is learning. The constructivist perspective provides strategies for promoting learning by all. This metaphor of construction comes from the idea that humans are builders, shapers, and designers, who throughout history have created artifacts from the pots to skyscrapers. The emphasis of the constructivist theory is on the PROCESS rather than the PRODUCT of learning. Constructivist approach that helps a teacher to teach in an innovative process in the classroom. In this research while I was teaching standard IX students of Kendrapara district of Odisha, I felt disconnected at my class, then I tried to find out the problems what are the problems they face then when I was discussing with them about science most of the students they said "science is a hard subject and it is difficult" then I was trying to

do an experiment in both the sections like I was taking one section as experimental group and another section as control group , I was started teaching an innovative manner in experimental group students in Constructivist approach and control group in traditional method and I was giving them 45 days treatment and tried to find out the results of benefits of teaching.

In a Constructivist approach, the students determine how much they have learned as well as the process by which they learned. It changes the dynamics of the traditional classroom by empowering the learner as the focus and architect of the learning process while redefining the role of the instructor to be a guide and helper, rather than the source and conduct of knowledge.

“Learning progression in science of class IX students of Kendrapara district”

5.7.3 RATIONALE OF THE STUDY

Our teachers are following/practicing the behavioural approach in teaching. They consider learners as the passive receiver of the information. The classroom is managed in an authoritarian manner. Teachers dominate the class. Students are compelled/forced to draw conclusions as per the directives of the teacher. They are not empowered to make their own decisions. Therefore, learning becomes a burden for the learners or of no use in their day-to-day life. Education is liberation. Providing direction not the decision should be the function of education. Learners have to construct their own knowledge as per their previous experiences and the cultures in which they live in. Constructivist Approach considers the learners as “the creator of their own knowledge”. Therefore, the Italian philosopher Giambattita Vico precisely and elegantly said “God knows the world because he created it; human beings can only know what they have made themselves”. A Constructivist approach uses content to accomplish this, while a teacher-centered approach just covers all the content that can fit into the course. It is more important that the students learn how to use their acquired knowledge rather than know all the facts presented in the vacuum of a classroom. As we examine factors related to the construction of knowledge, we find two focal points: that of cognitive constructivism and that of social constructivism. Cognitive constructivists focus on the cognitive processes associated with constructing knowledge as individuals make sense of new information with which they are confronted. Social constructivists concern themselves with the social and cultural processes at work (Windschitl, 2002). Learners are active creators of their own knowledge by asking questions, exploring subjects, and constantly assessing what and how they know. Each new knowledge must be reconciled with prior understanding; else false models (previous knowledge/paradigms) continue to prevail. Teachings through 5-E model, pupil generated experiments, real-world problem solving, discussion, debate, brainstorming, gamify learning, foster collaboration with group projects, Learner develop the content have to be used in this

approach. There is a need to shift from the behavioural approach to Constructivist approach of teaching. Therefore, a study was needed in the area of teaching Science through an approach (Constructivist) and to find its effectiveness in terms of the variables in terms of Achievement and attitude towards science.

5.7.4 OBJECTIVES OF THE STUDY

- To study the learning progression in science of class IX students of Kendrapara district.
- To study the attitude towards science of class IX students of Kendrapara district.
- To study the treatment, gender and their interaction on learning progression in science of Kendrapara district.
- To study the treatment, gender and their interaction on attitude towards science of class IX students of Kendrapara district

5.7.5 HYPOTHESIS

- ❖ There is no significant effect of Treatment on adjusted mean score of Achievement in Science of students taught through Constructivist approach and Traditional Approach when previous years' science score is taken as covariate.
- ❖ There is no significant effect of Gender on adjusted mean score of Achievement in Science of students taught through Constructivist approach and Traditional Approach when previous years' Science score is taken as covariate.
- ❖ There is no significant interaction of Treatment and Gender on adjusted mean score of Achievement in Science of students taught through Constructivist approach and Traditional Approach when previous years' Science score is taken as covariate.
- ❖ There is no significant effect of Treatment on adjusted mean score of Achievement in Science of students taught through Constructivist approach and Traditional Approach when previous years' Science score is taken as covariate.
- ❖ There is no significant effect of Attitude towards science on adjusted mean score of Achievement in Science of students taught through Constructivist approach and Traditional Approach when previous years' Science score is taken as covariate.
- ❖ There is no significant interaction of Treatment and attitude towards science on adjusted mean Science score of Achievement in a of students taught through Constructivist approach and Traditional Approach when previous years' Science score is taken as covariate.

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- ❖ There is no significant effect of Treatment on Achievement in Science Subject of Class IX students when their Pre–test Scores of Achievements in Science Subject was taken as covariate.
 - ❖ There is no significant effect of Gender on Achievement in Science Subject of Class IX students when Pre –test Scores of Achievements in Science Subject was taken as covariate.
 - ❖ There is no significant interaction of Treatment and Gender on Overall Achievement in Science Subject of Class IX students when Pre –test Scores of Overall Achievement in Science Subject was taken as covariate.

5.7.6 METHODOLOGY

Experimental method was employed for the study. Experimental research is a scientific approach to research, where one or more independent variables are manipulated and applied to one or more dependent variables to measure their effect on the latter results.

5.7.7 RESEARCH DESIGN

Non-equivalent control group design was employed for the study.

A non-equivalent group design is one where the assignment of participants to groups is not controlled by the investigator. When group assignment is not controlled there is a significant threat to internal validity. Since group assignment is not random, there is a chance that the groups are not similar.

The first non-equivalent groups design we will consider is the **post-test only non-equivalent groups design**. In this design, participants in one group are exposed to a treatment, a non-equivalent group is not exposed to the treatment, and then the two groups are compared. Imagine, for example, a researcher who wants to evaluate a new method of teaching fractions to third graders. One way would be to conduct a study with a treatment group consisting of one class of third-grade students and a control group consisting of another class of third-grade students. This design would be a non-equivalent groups design because the students are not randomly assigned to classes by the researcher, which means there could be important differences between them.

Another way to improve upon the post-test only non-equivalent groups design is to add a pre-test. In the **pretest-posttest non-equivalent groups design** there is a treatment group that is given a pre-test, receives a treatment, and then is given a post-test. But at the same time there is a non-equivalent control group that is given a pre-test, does not receive the treatment, and then is given a post-test.

In the present study **Non-equivalent control group design** is employed for this study. In the present study of the effectiveness of independent variables, method of teaching (two levels): (1) Constructivist approach method (2) traditional teaching method was required to be checked on dependent variable (achievement). Student achievement was measured using pr-test/post-test design. The pre-test data were collected from students eighth class yearly science test

scores from the school. The post-test data was collected from student's achievement science test scores taken by the investigator. thus, the researcher decided to use non-equivalent control group design.

5.7.8 SAMPLE

Stratified random sampling techniques were used for the selection of the school for the study. The sample was selected from the Kendrapara district, Odisha. One school was selected, randomly. The experiment was conducted in the session 2021. The school was selected, randomly. Two sections 'A' and 'B' of class IX were selected. Section A was taught through the Constructivist approach and section 'B' was taught through a traditional approach. Section A was designated as experimental group and section B was designated as control group.

5.7.9 TOOLS FOR THE STUDY

Tools are nothing but instruments that help researchers to gather data. Naturally the type of information depends upon the kind of tools used for the purpose. The selection of tools depends upon the objectives and design of the study, and the type of respondents intended to cover. In order to draw any conclusion from the research, tools used for the measurement of variables should be reliable and valid. This requirement is usually met by employing standardised tests.

Two tools, such as **Achievement test in science** and **Attitude towards science scale – Prof. Abinash Grewal (1978)** were used for the study. The Achievement test in science was developed by the investigator taking into consideration the content taught. Attitude towards science was measured by administering the Attitude towards science scale of prof. Abinash Grewal (1978).

5.7.10 PROCEDURE OF DATA COLLECTION

One schools of Jaipur district that is St. Xavier High School, Gopa, Kendrapara was selected randomly and 57 students of class IX of the school were selected randomly. The 57 students then divided into 2 groups, one group was designated as experimental group and another group was designated as control group. The experimental group was taught through specially designed contents in science and the control group students were taught through the traditional teaching method. Treatment of 45 days will be given to both the groups as per the respective methods mentioned above.

Before giving treatment of 45 days the attitude towards science scale (Grewal, 1978) was administered to both the groups. Previous year Science achievement marks of the students of respective group were collected from the school register. An achievement test of 40 marks in

science was developed by the investigator and administered at the end of the treatment of 45 days to both the groups.

Both the tools were scored properly and data was analysed using appropriate statistical technique.

5.7.11 STATISTICAL TECHNIQUE

Statistic is a body of Mathematical techniques or processes for gathering, organising, analysing and interpreting numerical data. Because most research yields such quantitative data, statistics is a basic tool for measuring, evaluating and researching. Statistical technique helps the researcher to systematised the observations, description of the characteristics or events for the purpose of discovering the relationships between variables. The various statistical techniques that are employed in the study are:

- ✦ Percentage frequency – that used to classify the raw scores in degree of the variables (Attitude towards Science and Academic Achievement).
- ✦ Mean.
- ✦ Standard Deviation.
- ✦ Coefficient of Variation
- ✦ 2 x 2 Factorial Design
- ✦ ANCOVA of unequal size

5.7.12 FINDINGS

The finding from the research are The Learning Progression of student taught trough the Constructivist Approach was higher than the students taught through the Traditional Method of Teaching, The Attitude towards Science of students taught trough the Constructivist Approach was nearly similar to the students taught through the Traditional Method of Teaching, There is a significant effect of Treatment (Constructive Teaching) on Achievement in Science Subject of Class IX students as compared to traditional method, There is no significant effect of Gender on Achievement in Science Subject of Class IX students and There is no significant interaction effect of Treatment and Gender on Achievement in Science Subject of Class IX students. From the interpretation of results, we can conclude that The Treatment is effective for the Progress of Student ignoring their Gender.

5.8.0 IMPLICATIONS

The implications of this study are valuable for the field of education, not just in Science, but in all study areas. The results found through this study varied from what research suggests. Therefore, there is a need for another study to be conducted.

When another study is conducted there are changes that should take place for better results to possibly occur. First, understanding that there is a need for students to be in their learning is vital. Today, there are many online classes being offered in which the students are required to regulate their learning. This study showed that when students are regulating their learning there is not a direct relationship to a higher achievement level. Second, it shows that there cannot be an instant change in grades when the teaching strategy is differentiated. To develop a concise understanding, the new strategy will take time and practice to develop the learners into confident learning progression strategies for students.

With continued research on the achievement level of science due to Constructivist approach methods, a researcher could conduct a very similar study. This research confirmed that Constructivist approach does not always produce a higher achievement level. This result has many contributing factors and possible reasons why this may have occurred. However, the researcher continues to argue that with the possible resources, time, and increased student population, the results of this study would have differed. The researcher would recommend that this study be done again as a longitudinal study using the same students over a three-year time span. This time would allow students to master the study strategy and understand the value of learning progression of students by using learner-centered approach. The shortest amount of time the researcher suggests would be two years. Forty-five days was not enough time to develop learning progression in science in a classroom.

Overall, it appears as though the treatment was effective and worthwhile. The requirements for implementation are minimal, especially when weighed against the possible benefits. Adding explicit learner-centered approach strategy instruction is a small but valuable addition to science content instruction.

The implications of this study are for direct classroom teaching as well as for the teacher education programme. Some of the major implications visualized are as follows.

- ✚ The strategies used, in this study, may be used by the class room teacher in teaching different subjects other than Science.
- ✚ The components used in this study may be used, separately or combined, for teaching languages other than Science.
- ✚ The lessons developed, in this study, may be used by the teacher of science.
- ✚ Teachers should be trained to develop instructional material on the lines of the lesson plans presented in this study.

- ✦ Teachers should be trained to teach through the Constructivist approach process. These lesson plans may be used as models for imparting training to the teachers as well as to the teacher-educators.

5.9.0 SUGGESTIONS FOR FURTHER STUDIES

Taking into Consideration the Present studies and its findings, the following studies may further be conducted

- ✓ The study may be conducted by taking the different samples of different classes of different level taking into considerations the other cognitive and psychomotor variables.
- ✓ Studies may be conducted in e-content, developed by different agencies for studying its effectiveness.
- ✓ Studies may be conducted for making comparison of different methods by taking selected variables.
- ✓ Studies may be conducted in the area of inclusive education and studying the effectiveness of the approach in terms of Cognitive and other demographic variables.
- ✓ Studies may be conducted Including learning style as an independent variable with Gender and Treatment.
- ✓ Studies may be conducted increasing the Sample size to get more accurate result.
- ✓ Studies may be conducted using different treatments other than Constructive approach.
- ✓ Studies may be conducted Applying this study to rural and urban area schools and compare their results.
- ✓ Studies may be conducted Administering this research in tribal area to find out the problems present there.
- ✓ Studies may be conducted using this study to analyse Learning Progression in Subjects other than Science.

5.10.0 CONCLUSION

Constructivist Approach is effective in improving the achievement in the subject concerned. It was also experienced during the study that this approach was not only effective in cognitive development but also effective in interpersonal development. The skills that were practiced by

the learners can be, further, mastered by them. As Constructivist approach advocates for the contextuality, the contents should be meaningful to the learner.

Although the effect size was small, the findings are encouraging. The students in the Experimental group indicated they used Constructivist approach strategies more than the Controlled group. It is not surprising that both groups of students indicated they used some learning progression strategies and that use increased for both groups of students. For this study, the treatment went beyond a focus on traditional study skills to include strategies of learning progression. This was evident when the investigation indicated significant differences, with the treatment group showing greater frequency of Constructivist approach (5-E model) strategy use when analysed as a whole. The intent of explicit Constructivist approach learning strategy instruction is to help students learn strategies which will support their efforts to reach learning goals. This is evident by the significantly higher Science achievement scores realized by the Experimental group. This study attempts to know the effect of Constructive Approach on Student's Learning, to calculate their progress in learning, to know if there is any deference in their Attitude towards Science and if Gender of a student affects its achievement or not. Constructivist approach is effective in improving the achievement in the subject concerned. It was also experienced during the study that this approach was not only effective in cognitive development but also effective in interpersonal development. From the above finding it was concluded that the Treatment that means Constructive Approach is effective in increasing Student's achievement in science but it has no effect on their attitude towards science. Gender also plays a very negligible role in case of Student's Achievement in Science.

As the school curriculum begins to forge a stronger link between science-as-it-is taught and science-as-it-is-practiced, a major constraint currently affecting the use of Constructive Approach within the curriculum may be lifted. The use of Constructive Approach will then, perhaps, lie at the core of science teaching and learning. It can be concluded that students' prior knowledge, expectations, and perceptions determine what information will be selected out for attention. What they attend to determines what they learn. In order to learn a concept meaningfully, students must carry out cognitive processes that construct relations among the elements of information in the concept.