CHAPTER - V

SUMMARY AND CONCLUSION

5.1 INTRODUCTION

The United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Education forum emphasized the essential role of teachers in achieving the goals of Education for all. The world is confronted with two trends that have major implications for the world’s educational systems. The first trend is the exponential growth in knowledge and technology that is transforming all aspects of global society and economy. The second trend is the increasing shortage of teachers in both developing and developed nations.

The aim of education is not merely imparting of knowledge or the preparation of a finished product, Its aim is to arouse curiosity, develop proper interests, attitudes and values and the buildup habits of independent study and the capacity to think and evaluate. Without thinking it is not possible for one to become a responsible member of a democratic society. A teacher will have to integrate the skills of teaching and also help the students to grow intellectually, emotionally and socially with commitment to a set of values. For this, a teacher must have knowledge of his subject, methods and techniques of teaching. Many skills are needed to communicate effectively like the skill of questioning, illustrating, demonstrating, explaining, skill of arranging and logically sequencing the subject matter. These skills and attitudes can be developed through systematic learning.
This chapter deals with the summary of the findings, discussion, recommendations and Educational implications, recommendations for policy decisions and suggestions for further research and Conclusion.

5.2. RE-STATEMENT OF THE PROBLEM

International competition has fuelled the flame of educational reforms in different countries. One of the core issues in on-going educational reforms is the development of a highly qualified, skilled and committed teaching force for educating students from diverse backgrounds with a view to preparing them to meet the challenges in future. The National Policy on Education (1986) proposed the need of modifying curriculum and methodologies of learning through appropriate research and enhancing attention-activation techniques. Innovative technologies have provided new dimensions to teaching and learning. The problem for the present study is the “Effectiveness of Selected Instructional Approaches to Enhance Understanding of Abstract Concepts in Physics among Higher Secondary Students”.

5.3 NEED FOR THE STUDY

In a rapidly developing country like India which is surging fast in the new millennium, the whole system of education revolves round academic achievement. Thus a lot of time and effort of the schools are used to help students to achieve better in their scholastic endeavors. In spite of this, our students score low marks in various subjects but this shortfall in achievement is high in Physics. Even though many attempts have been made to improve the level of attainment there seems to exist mainly three categories of students as high- average- and low achievers.
The importance of achievement has raised several questions relating to psychological factors that promote achievement in students. The variables contributing to the educational achievement are to be identified. A review of the previous studies reveals that there are various strategies to promote numerical reasoning, ability to use symbols, abstract reasoning, inductive reasoning, deductive reasoning, problem solving ability, creativity, self-concept, achievement, motivation etc., which can be tried to promote achievement in Physics.

5.4. SIGNIFICANCE OF THE STUDY

The effectiveness of the selected strategies will enhance the understanding of any abstract concepts in any branch of science. Researchers have attempted to deal with all kinds of approaches and in particular have selected the instructional approach as the suitable means to enhance the understanding of the abstract concepts in Physics by higher secondary students. They have traced the growth of methods of teaching since the ancient days and listed the shortfalls of the traditional passive method of learning and the advantage of the present mode of teaching through the instructional approach.

5.5. SCOPE OF THE STUDY

In order to bring any significant change in the teaching of Physics there is a need to expose teachers to various strategies which will result in better teaching and learning. For success, teachers have to be provided with materials which are different and more effective than those traditionally presented in the text books and also exposed to individualized instructional strategies.
New methods and techniques in education are increasingly making an impact on the conventional approach to teaching and learning. The Instructional approach is a well-known method which involves better and effective teaching and learning. It helps the teacher in covering more content in less time in a more effective way.

In science, many studies have already been conducted to prove the effectiveness of instructional approaches as compared to other methods of teaching. In Physics, such studies are confined to the effectiveness of the instructional approach in linear style as compared to traditional methods of teaching. Attempts are to be made to establish the effectiveness of teaching Physics through instructional approach as against conventional methods of teaching. In Physics, there are topics like Atomic Physics, Nuclear Physics and Units and Measurement which are difficult to be taught by instructional approaches due to the complexity of the content. They will demand a large number of frames to cover the content. The present study seeks to establish the effectiveness of selected Instructional Approaches in enhancing understanding of abstract concepts in physics among higher secondary students.

5.6. SUMMARY OF REVIEW OF RELATED LITERATURE

Without a review of literature, it would be difficult to build a body of acceptable knowledge on any topic. It is useful in studying the significance of the problem, developing the research design, relating the results of the study to previous knowledge and suggesting further research. It gives a deep insight and a clearer perspective of the overall field.
It is very essential for every investigator to be up-to-date in his information about the literature related to his own problem, already done by others. It is considered the most important prerequisite to actual planning and conducting the study. It locates comparative data and findings useful in the interpretation and discussion of results. Hence, the investigator has made an attempt to collect and analyze relevant information related to the present investigation.

their studies on selected instructional approaches like multimedia, mastery learning, laboratory method with reference to achievement in other subjects abroad.


5.7. ASSUMPTIONS OF THE STUDY

5. The instructional approaches can be categorized in terms of their specific objectives.
6. Instructional approaches play a vital role in the teaching – learning process.
7. The effectiveness of instructional approaches can be measured.
8. The instructional learning approaches can be compared statistically with one another to find out the effectiveness of inductive approaches, deductive approaches and instructional approaches.

5.8. OBJECTIVES OF THE STUDY

The main objective of the study is to make the students proficient in basics like “units and measurements” in Physics and their level of understanding of certain concepts in the areas of “Atomic Physics” and Nuclear Physics.

5. To identify the level of difficulties experienced by the students in learning Physics particularly areas like Units and Measurements, Atomic Physics and Nuclear Physics
6. To identify the level of achievement in Physics of the higher secondary pupils of St. Joseph’s Higher Secondary School, Venkatakulam, Pudukottai District, before implementation of the instructional approach.
7. To design, validate and implement instructional approaches to facilitate better achievement level in Physics.
8. To find out enhancement effected among higher secondary students after implementation of the instructional approach.

5.9. HYPOTHESES OF THE STUDY

The following hypotheses are formulated to give a specific direction to the present study.
5. There will be significant mean difference between pre assessment and post assessment level of the achievement through instructional approaches among higher secondary students.

6. There will be significant mean difference between pre assessment and post assessment scores on units and measurement through instructional approaches among higher secondary students.

7. There will be significant mean difference between pre assessment and post assessment scores on Atomic Physics through instructional approaches among higher secondary students.

8. There will be significant mean difference between pre assessment and post assessment scores on Nuclear Physics through instructional approaches among higher secondary students.

In this study all the directional hypothesis were converted into null hypothesis for the purpose of statistical analysis
5.10. PHASES OF THE STUDY

Stage - I  
Examing various instructional approaches suitable for learning Physics at higher secondary level

Stage - II  
Selecting an appropriate learning approaches for teaching Physics at the Higher Secondary Level

Stage - III  
Selecting the Experimental Group

Stage - IV  
Administering pre-test to the Experimental group

Stage - V  
Treatment

Stage - VI  
After the four month period - Conduct of post assessment

Stage - VII  
Analyzing the data to find out the effectiveness of the selected instructional /learning approach
5.11. COMPOSITION OF THE GROUP

The present investigation was conducted in St. Joseph’s higher secondary school, Venkatakulam, Pudukottai District, Tamil Nadu, South India. All the 50 students of higher secondary level (Physics optional) formed the sample of the study. Single group pre test treatment post test design and purposive sampling techniques was followed.

5.12. EXPERIMENTAL DESIGN

The researcher used Pre-Assessment - Treatment –Post-Assessment experimental group design for this study which involves one group alone. In this design the only available group is experimental followed by pre-assessment treatment and post assessment.

Pre-assessment and post- assessment is on the same group. In this experimental design all sources of internal validity are controlled due to random assignment. Written tests were developed for the collection of data. Pre-test was developed from the first chapters (units and measurement) of Higher secondary 1" level in Physics. Out of 50 questions, 12 for knowledge, 8 for comprehension, 9 for application, 14 for analysis, and 7 questions for synthesis were constructed. Pre assessment was developed from the chapter (Atomic Physics and nuclear Physics) of Higher secondary 2" level in Physics.

Post assessment was constructed from the two chapters of the same textbook whereas the distribution of the questions from the area remained same for each domain as in the pre-test. Test items were finalized after item analysis. Item difficulty and item discrimination index were calculated and test items of mixed
difficulty were selected finally. Content validity of the tools was established by discussing them with two different subject experts and an educationist in the field of science education.

5.12.1. Single Group Pre-Assessment- Treatment Post-Assessment Design

Experimental designs are unique to the experimental method. They serve as positional and statistical plans to designate relationships between experimental treatments and the experimenter’s observations or measurements in the temporal scheme of the study. Judicious selection of the design improves the probability that the observed change in the dependent variable was caused by the manipulation of the independent variable and not by other factors. It simultaneously strengthens the generalizability of results beyond the experimental setting. (Schuman, Jahoda, Deutsht). The single group method is the elementary and least rigorous design.

5.13. RESEARCH TOOLS

The tools used were as follows

1. Achievement test in units and measurement
2. Achievement test in Atomic physics
3. Achievement test in Nuclear physics

Instructional approach in physics was developed by the researcher. This tool is prepared with the help of different ideas by researcher himself. Instructional approach consisted of three chapters from the text book of physics of the higher secondary level.
The researcher constructed achievement test for the pre assessment post assessment purposes related to selected topics of Physics—units and measurement, atomic physics and nuclear physics of higher secondary Tamil medium following Tamilnadu state board curriculum.

5.14. DEVELOPMENT OF INSTRUCTIONAL DESIGN TO TEACH ABSTRACT CONCEPTS IN PHYSICS AMONG HIGHER SECONDARY STUDENTS

The instructional design involves knowledge of multiple methods or activity sequences that lead to successful student learning of a specific concept or process skill. The teacher should be able to employ a variety of concrete and abstract representations and experimental procedures to appeal to the variety of ways students learn. The teacher should always encourage students to arrive at an answer by reasoning rather than by memorization and recall.

The teacher uses and encourages students to construct multiple representations of the same idea during a lesson; asks students to explain (using queries like “How?,” “Why?,” or “Explain”) phenomena or answers; and allows students to discuss questions in groups before presenting an answer. When students have difficulty in understanding a concept, the teacher suggests or encourages students to employ alternative approaches.

Instructional design is defined as a systematic process programmed in a consistent and reliable fashion that is employed to develop education and training. In addition, instructional design models or theories may be thought of as frameworks for developing modules or lessons that enhance the possibility of learning and
encourage the engagement of learners so that they learn faster and gain deeper levels of understanding.

Instructional design is also called the instructional systems design (ISD) and it is the practice of maximizing the effectiveness, efficiency and appeal of instruction and other learning experiences. The process consists broadly of determining the current state and needs of the learner, defining the end goal of instruction, and creating some “intervention” to assist in the transition. There are many instructional design models based on the ADDIE model with five phases—Analysis, Design, Development, Implementation and Evaluation. The instructional design is traditionally rooted in cognitive psychology.

The present instructional design formed in this study is for the higher secondary students who learn Physics as one of their subjects.
**THOMAS’S MODEL FOR SELECTED INSTRUCTIONAL APPROACHES**

**ANALYZE**
- Students
  - Learning Difficulties
  - Lack of Interest
  - Absence of prior Knowledge about physics
  - Irregular Attendance
  - Aversion in solving Mathematical Problem
  - Unawareness of the Concept of Units and Measurements
  - Neglect the Particular Chapter
  - Inattentive Nature in the Class
  - Lack of Awareness on Units and measurement in proper usage

**DESIGN**
- Formulating tables units and measurement developed 6X6 unit matrix
- Simplifying table of α, β and γ in nuclear physics
- Concretising working models on Atomic physics
- Presenting pictorial diagrams
- Illustrating diagrammatic representation
- Formulating innovative tables other than in textbooks
- Training on fill up the vacant boxes of the table

**DEVELOPMENT AND IMPLEMENTATION**
- Explained formula chart & formulated simplified tables
- Facilitated passive listener to active listener & Simplified Symbolic Instruction
- Transformed concept teaching in activity based concept & Experimental illustrated through Demonstration
- Focused Pictorial presentation rather than audiovisual & encouraged peer group Instruction
- Improvised diagrammatic representation
- Converted abstract formulae in simplified versions & Developed Join group Instruction
- Simplified abstract concept in to clearly defined concept

**EVALUATION**
- Assessing Learners Entry on Ultimate Desired Learning Outcomes
  - Pre Assessment
    - The entire lessons were divided into three units.
    - Each unit was subdivided into many conceptual areas.
    - For each sub unit content and computation was divided into five categories: knowledge, comprehension, application, analysis, synthesis and evaluation.
    - Multiple choice questions were developed based on weightage of the content.
    - In total 50 multiple choice questions were used for assessment.
    - The same procedure was adopted for post assessment.
    - The difference between pre and post assessment shows the significance of innovative instructional approaches.
5.15. APPLICATIONS OF SELECTED INSTRUCTIONAL APPROACHES IN PHYSICS

In this study, achievement test in Units and Measurement, Atomic Physics and Nuclear Physics are the dependent variable and Implementation of an eclectic instructional approach is the independent variable. Pre assessments and the Post assessment tests were conducted in all the three areas chosen and an intervening treatment was given with instructional strategies.

5.16. ADMINISTRATION OF PRE-ASSESSMENT

The level of academic achievement of the subjects was assessed at the beginning, before the tools developed by the investigator were used and the scores were recorded as the pre assessment academic achievement in Physics.

5.17. ADMINISTRATION OF POST-ASSESSMENT

After the treatment, a similar academic achievement tool was used to assess improvement in the levels of achievement.

5.18. DATA COLLECTION

The required data were collected with the help of pre test, treatment, post test and the opinionnaire constructed by the researcher. In between pre test and post test the instructional approaches were for one month on the experimental group with the help of their teacher. After implementation researcher administrated post test after one month and opinionnaire was given to know the reaction of the student regarding learning with the new instructional approaches.
In the second phase researcher implemented the developed instructional approaches on the experimental groups for one month after the gap of one month from pre testing. Prior arrangement regarding experimentation was made with the help of instructor of the school and with the permission of the Headmaster. All the topics included in the instructional approaches were taught to the control group with traditional method by their teacher.

In the third phase researcher administrated the post test on the students of all the fifty to study the effectiveness to enhance understanding abstract concepts in physics. The same pre test was used as post test. The tool developed by the researcher was administrated on the student of the experimental groups to know understanding abstract concepts in physics among higher secondary level students about the developed instructional approach.

5.19. DATA ANALYSIS

Data collected in Pre-test, Treatment and Post-test was analyzed using appropriate statistical techniques. In the present study, the relevant data obtained from assessment scores on the pre test, treatment and post test on achievement in physics through instructional approach (Pre and post Test) secured by 50 higher secondary students have been analyzed as follows:

The appropriate statistical techniques are used for the analysis of data.

(a) Parametric Analysis

1. Descriptive Analysis
2. Differential Analysis
3. Correlation Analysis
(b) Non Parametric Analysis

1. Gain Ratio
2. Omega Square ω²
3. Effect Size
4. Kruskal – Wallis Test

5.20. DELIMITATION OF THE STUDY

4. In the present study, only Higher Secondary Students – who opted Physics as their optional subjects are selected.

5. The experiment was spread over for a period of four months. Instructional Approaches were adopted to enhance understanding of abstract concepts in Physics among higher secondary students in the form of programmes in the classroom.

6. This study is confined only to St. Joseph’s higher secondary school, Venkatakulam, Pudukottai District, Tamil Nadu, South India.

5.21. MAJOR FINDINGS OF THE STUDY

- The Understanding of Abstract Concepts in Physics among Higher Secondary Students is enhanced due to Selected Instructional Approaches, as revealed by the improvement in post assessment mean score.

- The level of Understanding of Abstract Concepts in Physics among Higher Secondary Students is more in the post assessment than in the pre assessment correlation analysis.

- There is significant correlation between the Atomic Physics of post and pre assessment.
There is significant correlation between the post and pre assessment in Nuclear Physics.

There is significant correlation between the post and pre assessment in the Units and Measurement.

The mean score of Atomic Physics in post assessment (43.50) is greater than the Mean score of Atomic Physics in pre assessment (15.84). It could be inferred that the Selected Instructional Approaches have started working to improve the Understanding of Abstract Concepts in Physics among Higher Secondary Students.

The mean score of Nuclear Physics in post assessment (44.32) is greater than the Mean score of Atomic Physics in pre assessment (15.46). It could be inferred that the Selected Instructional Approaches have facilitated the improvement in Understanding of Abstract Concepts in Physics among Higher Secondary Students.

The mean score of Units and Measurement in post assessment (44.34) is greater than the Mean score of Atomic Physics in pre assessment (15.34). It could be inferred that the Selected Instructional Approaches have improved the Understanding of Abstract Concepts in Physics among Higher Secondary Students.

It is evident that the Instructional Approaches are effective.

The implementation of Instructional Approaches has improved the performance in Understanding of Abstract Concepts in Atomic Physics. The calculated ‘t’ value 32.046 is greater than the theoretical value of 1.96 at 0.05
level. The difference between the pre and post assessment mean scores on Atomic Physics is significant at 0.05 level.

- It is evident that the introduction of Instructional Approaches has improved the level of Understanding of Abstract Concepts in Nuclear Physics. The calculated ‘t’ value 36.33 is greater than the theoretical value of 196 at 0.05 level. The difference between the means of pre and post assessment scores in Nuclear Physics is significant at 0.05 level.

- The implementation of Instructional Approaches has improved the performance in Understanding of Abstract Concepts in Units and Measurement. The calculated ‘t’ value 38.66 is greater than the theoretical value of 1.96 at 0.05 level. The difference between the pre and post assessment mean scores on Units and Measurement is significant at 0.05 level.

- There is a significant improvement in enriching the Instructional Approaches from pre to post assessment.

- There is a significant difference between higher secondary school students pre assessment scores in atomic physics and post assessment scores in atomic physics.

- There is a significant difference between higher secondary school students pre assessment scores in nuclear physics and post assessment scores in nuclear physics.

- There is a significant difference between higher secondary school students pre assessment scores in units and measurement and post assessment scores in units and measurement.
There is a significant difference between higher secondary school students pre assessment scores in atomic physics and post assessment scores in atomic physics. (Effect size is large. \( d = 6.898 \))

There is a significant difference between higher secondary school students pre assessment scores in nuclear physics and post assessment scores in nuclear physics. (Effect size is large. \( d = 7.381 \))

There is a significant difference between higher secondary school students pre assessment scores in units and measurement and post assessment scores in units and measurement. (Effect size is large. \( d = 7.733 \))

The gain ratio also indicates the considerable improvement of 80.97% in “Atomic Physics” due to the instructional approaches.

The gain ratio also indicates the considerable improvement of 83.56% in “Nuclear Physics” due to the instructional approaches.

The gain ratio also indicates the considerable improvement of 83.67% in “Units and Measurement” due to the instructional approaches.

The ‘\( \omega^2 \)’ value of higher secondary school students in atomic physics 91% increase in atomic physics is due to instructional approaches.

The ‘\( \omega^2 \)’ value of higher secondary school students in nuclear physics 92% increase in nuclear physics is due to instructional approaches.

The ‘\( \omega^2 \)’ value of higher secondary school students in atomic physics 91% increase in Units and measurement is due to instructional approaches.

Kruskal – Wallis ‘H’ test of 74.393 values between pre and post assessment on Atomic Physics, is greater than the theoretical value of 7.08 at 0.01 level.
It indicates that there is significant difference between pre and post assessment of Atomic Physics

- Kruskal – Wallis ‘H’ test of 74.429 values between pre and post assessment on Nuclear Physics, is greater than the theoretical value of 7.08 at 0.01 level. It indicates that there is significant difference between pre and post assessment of Nuclear Physics.

- Kruskal – Wallis ‘H’ test of 74.432 values between pre and post assessment on Units and Measurement, is greater than the theoretical value of 7.08 at 0.01 level. It indicates that there is significant difference between pre and post assessment of Units and Measurement.

5.2. EDUCATIONAL IMPLICATIONS

The world is becoming more and more competitive. Quality of performance has become the key factor in personal progress. Parents desire that their children should climb the ladder of performance to greater heights. This desire for a higher level of achievement puts a lot of pressure on students, teachers, schools and in general, the educational system itself. In fact, it appears as if the whole system of education revolves round the academic achievement of students, as seen in various other outcomes. Thus a lot of time and effort is used for helping students to achieve better in their scholastic endeavours.

The investigator found that students achievement in Physics at the higher secondary level was very low. So he decided to try to enhance the students’ achievement in Physics at the higher secondary level through a few selected instructional approaches. In order to test these instructional approaches, he
conducted an achievement test in physics and the students’ achievement level was analysed and recorded prior to all administration of new methods and materials.

The mean scores of the post tests in comparison with the those of the pretest indicates considerable improvement.

It is inferred that understanding of abstract concepts in Physics improves with appropriate instructional approaches adopted by him/her. Therefore, the teachers should be aware of the different types of instructional approaches and use them whenever the necessity arises.

There was an improvement in the students’ achievement level in Physics with the simultaneous application of different selected instructional approaches.

1. This experimental study investigated the effectiveness of selected instructional approaches in enhancing understanding of abstract concepts in Physics among higher secondary students.

2. The findings of the study have established that the application of selected instructional approaches has been more effective than other regular classroom methods.

3. Physics teachers can use these instructional approaches in the regular classroom to enhance students understanding of abstract concepts in Physics.

4. Selected instructional approaches help the students to attain their goals.

5. Teachers of physics can apply the selected instructional approaches for the students with physics learning difficulties.

6. Teachers of physics can develop new instructional approaches and apply them in the classroom.

218
7. Selected instructional approaches evoke curiosity and promote understanding of abstract concepts in Physics. Students find out the place where they are in comprehension and they will be ready to upright their position in physics learning.

Finally, the results show that the gradual increase from pre assessment to post assessment on students’ achievement in physics reveals the influence of instructional approaches.

5.23. SUGGESTIONS FOR FURTHER RESEARCH

This study provided the researcher new lines of thought in the teaching and learning of physics. It also provided an opportunity to understand and combat the practical difficulties of students. The following suggestions for further research are offered.

The study was conducted only with a sample of higher secondary school students in St. Joseph’s Higher Secondary School, Venkatakulam, Pudukottai District, Tamil Nadu, South India. The findings may not apply students from another milieu. So it is suggested that similar method may be conducted with the students of various schools in other districts.

1. This study was conducted only with fifty (50) students. This study may be attempted with a larger sample.

2. The present investigation was carried out to find out the effect of selected instructional approaches on the achievements of higher secondary school students in Physics. For this experiment studying Unit and Measurement, Atomic Physics and Nuclear Physics were tried out. Comparative studies with other units in higher secondary Physics syllabus may be attempted.
3. The same investigation may be carried out in other subjects like Mathematics, Chemistry, Biology, Computer Science, Tamil and English.

4. It is also suggested that this study can be conducted at elementary, secondary levels and even at higher education levels.

5. The present study was conducted for 16 weeks. The same type of study may be carried out for a longer duration.

6. Attempts could be initiated to strengthen the theoretical foundations of the instructional approaches.

7. Student perception of the teacher utilizing the instructional approaches could be found out.

8. In addition to the instructional approaches a study on learning strategies of students could also be attempted.

5.24. CONCLUSION

Learning is a process in which students interact with the teachers and get learning experience. Learning experience is something more than the enhancement of knowledge in a specific field. If students face any problems or difficulties, naturally the knowledge enrichment skill development processes will be affected. It is the indispensable duty of the teacher to provide enough learning experiences through the teaching-learning process. If the teaching-learning process is hindered by student problems and difficulties that should be immediately rectified in order to provide enough knowledge, up to the expectancy level of students. Considering the
above points, the investigator made an attempt to identify the difficulties and problems of students in learning Physics at higher secondary level.

The investigator identified the difficulties and the problems of students in learning abstract concepts in Physics. Through trying out and synthesizing various instructional approaches dealt with the content on ‘Units and Measurement’, “Atomic Physics” and “Nuclear Physics”. He gave learners adequate basic knowledge in mathematical concepts. This has solved the problems and difficulties of many learners and simplified teaching with real-life examples and stage by stage presentation enabled students to understand the Units and Measurement without much difficulties.

With respect to the unit on ‘Atomic Physics’, in the beginning students found it very difficult to not understand the various atom models. Students only memorized them to get marks in the exam. By using the innovative instructional approaches blended with life experiences used in, they were able to understand the concept and scored better grades with clarity in understanding.

With respect to ‘Nuclear Physics’ the students faced difficulty in calculating the number of Alpha particles, Beta particles and Gamma particles. But by the innovative instructional approaches the concept of ‘radio activity’ was well understood by utilizing the different frames as tables explaining the common and different process of radio activation. As a result the students were able to understand the concept of radio activity fully and scored very good marks in the post assessment.
From this it is found that learners were enabled to retain the understanding of abstract concepts already learned as a platform or launching pad for further learning through the innovative instructional approaches if the approaches are planned in such a way as to teach abstract concepts concretely. Hence, the teacher should periodically design and implement new instructional approaches depending on the complexity of the content and the nature of his class.