Chapter VI

Observation, Conclusion and Suggestion

6.0 Introduction:

The concept of mathematics laboratory is getting popular among secondary and senior secondary schools. Certain state Government Education Boards have allotted practical marks for mathematics practical examination system in their curriculum. This study is prepared to cater the need of students and teachers of Gujarat State in setting up a mathematics laboratory in their school because Gujarat Education Board has not yet not introduced mathematics laboratory in their schools.

Mathematics is a way of organizing our experience in managing a system. Introducing laboratory teaching method in this area enriches students’ understanding and making sense of their experiences. It also gives them enjoyment and they can meet different challenges in real life. By doing mathematical experiments they get an opportunity to use mathematics as a tool to tackle the problem in other subjects also. The laboratory approach in this field can describe and explain the crux of any real life problem and predict the future events. Therefore, it is important to introduce mathematics laboratory teaching method from early school level.

The laboratory teaching programme encourages fluent, flexible and original thinking. It also develops the student’s imagination. Under this laboratory approach students will become more productive, creative and self reliant. Previous studies found laboratory approach to be more effective. This provided the theoretical support for laboratory teaching programme. This research study taken by investigator is the first attempt in Gujarat to investigate the impact of LTP in academic subject like mathematics.

This chapter contains the summary, finding and suggestions for further research. The brief summary of the research work is sated in 6.1.

6.1 Summary of the research work:

This study consists of three parts.

1. The construction of laboratory teaching programme for standard VIII in mathematics.
2. Implementation of laboratory teaching programme.
3. To study the effect of laboratory teaching programme on achievement in mathematics.

The content for LTP was selected from the topics of mathematics of standard VIII of Gujarat State. It covers almost all topics of the book. Laboratory teaching programme was developed by investigator on the basis of laboratory teaching method and laboratory approach. Each programme of laboratory teaching programme was developed in four sub parts namely (i) Information about programme (ii) Reading Material (if require) (iii) Worksheet (iv) Kit. Also Investigator Work and Instructions for Programme included in these programmes. LTP contained the topics namely: (i) Set Theory (ii) Expansion (iii) Structure of Geometry and Point, Line and Distance (iv) Analysis of Data (v) Line Segment, Ray, Plane and Angles (vi) Factorization (vii) Parallel lines (viii) Construction (ix) Circles (x) Surface Area and Volume.

Almost all the sub topics of these chapters were included in the LTP. Thus LTP contained topics from three branches of mathematics (i) Algebra (ii) Geometry (iii) Statistics. The Reading Materials provided to students were sufficient and in compact form. It included examples as well as figures. Different types of experiments were included in work sheets. A total of 68 experiments were included in these ten LTP. Each experiment was divided in to sub parts like Aim, Instrument, Procedure, Observation Tables, Activities (drawing, make arrangement, construction and measurement etc.) and Conclusion. Investigator himself prepared Kits for LTP. For programme like Set Theory, Expansion and Factorization, one Kit was shared between two students. No kit was used for programme of Analysis of data. For programme like Structure of Geometry and Point, Line and Distance, Line Segment Ray Plane and Angle, Parallel Lines, Construction and Circle individual kit was provided to every student. In the programme of Surface Area and Volume, one kit was used for one class, for this class was divided in three groups and rotation policy was applied for six experiments.

A set of ten laboratory teaching programmes were developed by investigator using four sub parts described as above. IT was given to experts as well as mathematics teachers for validation. Try out of the LTP was performed on a small group of students. These students were not included in the final implementation of LTP. Suggestions of experts, mathematics teachers and try outs improved the quality and validity of LTP. The final form of LTP was used in the experiment is include in Appendix 1. The systematic treatment was given to the experimental group during July to February months of academic year 2008-2009.

The following tools were used for measuring the two independent variables and one dependent variable: (i) Intelligence scores obtained from I.Q. test developed by Dr. K.G.Desai (ii) SES scores obtained from SES test developed by Dr. H.N.Tapodhan. (iii)
Achievement Scores obtained from Achievement test developed by investigator. Also laboratory teaching programmes were used to improve the achievement of students in mathematics. It was developed by investigator.

The research design was chosen a $2^4$ Factorial Design. There were four independent variables namely treatment, sex, intelligence and SES each of level two. Achievement of students in mathematics was considered as dependent variable.

A total of 220 students were selected from standard eighth of Gurukrupa Vidyalay, Ahmedabad for experiment. They were divided into two equal groups on basis of their I.Q. One of these two groups was randomly selected as experimental group and other as control group. The laboratory teaching programme was given to experimental group. Control group had taught same content by traditional classroom chalk and talk teaching method.

After the completion of the whole programme execution, the achievement test was administrated to the students of both the groups under the study at the same time. These achievement scores were subjected to the statistical technique of ANOVA. The F test and t-test were used to check the significance of the effects of various factors. The data and procedure of analysis were explained in chapter V.

The observation and analysis are summaries in the following section.

6.2 Class room observations:

Laboratory teaching method is a student’s centric method but the teacher plays an important role as instructor, guide, supervisor and facilitator. Teacher has to make appropriate sitting arrangement for different types of experiments. He had to put kits at proper place before experiment starts. Moreover necessary instructions were imparted to the student to maintain proper classroom climate. Some important points were taken into consideration for open classroom climate:

1. To make students alert for new programme and experiment.
2. To encourage them to go through given reading material quietly.
3. To ask them about their doubt in reading material. If any, then solve them.
4. To encourage students to read aim and procedure. Also to check weather students take proper Kits or not.
5. To encourage students to perform the experiment themselves and to write their observation at proper place in the Worksheet.
6. To encourage and also give little help (if students ask) to derive conclusion of experiment.
7. To encourage students to perform the experiment neatly and accurately.
8. To develop a cooperative environment in classroom.
Such a healthy, creative, cooperative atmosphere encourages the students to think in various dimensions of life. It was essential to develop laboratory teaching programme as part of this study. Every programme had been tried out on a small sample of students to know the practical difficulties arising. Thus, certain observations were made during this process of try out. During the pilot try out, the following observation made.

1. Students were very happy to do various experiment in mathematics.
2. Most of the students took deep interest in each of activities of the programme.
3. In the beginning students took more time to complete one programme. Later on they are able to complete programme in proper time.
4. Students were highly interested in making square, rectangle and Venn diagram from given kits. There was competition among students in accurate measurement.
5. To derive conclusions students were seen to think originally.
6. From very first day students took interest in learning by this method.
7. Most of the students used skill of analysis, comparison, measuring, observation and original thinking.
8. Creative and cooperative atmosphere was found while the programme duration.
9. Almost all students were able to write their observation in given Worksheet. Also they were able to give correct answer of given questions in Worksheet.
10. Most of the students were able to conclude result from observation and comparison.

Observation during the implementation of the programme:

From the very first programme, students liked the laboratory teaching method. They highly appreciated this method. They were feeling that laboratory teaching method is stress free and enjoyable. They enjoy this programme like games. They enjoyed the colour combination in these kits. Students were hurrying to complete their experiments but not at the cost of accuracy. In angles measurement, students faced some difficulty to measure angles because they never used protractor to measure angle in clock wise direction. After one demonstration with help of big protractor by investigator on black board they were able to measure any type of angle. Students enjoyed the activity of finding average height and marks of their group as well as class. Investigator has no words to explain how much students enjoy the experiment of Surface Area and Volume. Students liked this method because they had to do all the activities on their own. They were surprised that by playing with Kits they were able to derive conclusions. Investigator observed that girls were more enthusiastic than boys during the experiments. Girls were more accurate in the measurement and construction. Students told that mathematics must be taught through these types of experiments. They tried to take assurance from investigator that they will be taught by laboratory teaching method next year also. In some of the LTP, some students themselves prepared Kit at their home.
They showed it to investigator. This shows a great success of the programme. Students appreciated investigator’s hard work in preparing all these kits and programmes. They enjoy the colour combination in these kits.

The statistical observations would give a clear and perfect picture of its effect.

6.3 **Statistical observation and conclusion:**

On the basis of the data obtained in the previous chapter V the statistical observation and conclusion are discussed according to study wise. They are briefed bellow.

**Study 1: Treatment v/s Achievement**

**Observation:**

F value for treatment is found to be 56.5394. This is greater than the table value 6.91. It is significant at 0.01 level. Also $M_{A1} = 26.77$ and $M_{A2} = 22.38$ thus $M_{A1} > M_{A2}$ holds.

**Conclusion:**

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of experimental group is better than the control group.
3. The laboratory teaching programme had improved the achievement of students in mathematics.

**Study 2: Sex v/s Achievement**

**Observation:**

F value for sex is found to be 0.059794. This is not significant at both levels.

**Conclusion:**

There is no significant difference between the achievement of boys and girls in mathematics.

**Study 3: Intelligence v/s Achievement**

**Observation:**

F value for intelligence is found to be 204.6316. This is greater than the table value 6.91. It is significant at 0.01 level. Also $M_{C1} = 28.75$ and $M_{C2} = 20.395$ thus $M_{C1} > M_{C2}$ holds.
Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of high I.Q. group is better than the low I.Q. group.

Study 4: SES v/s Achievement

Observation:

F value for SES is found to be 15.78947. This is greater than the table value 6.91. It is significant at 0.01 level. Also M_{D1} = 25.75 and M_{D2} = 23.415 thus M_{D1} > M_{D2} holds.

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of high SES group is better than the low SES group.

Study 5: Interaction of Treatment and Sex v/s achievement:

Observation:

F value for interaction effect of treatment and sex on achievement is found to be 0.093429. This is not significant at both levels.

Conclusion:

There is no significant interaction effect of treatment and sex on achievement statistically, but this result dose not revealed in graph 5. So investigator suggested replicating this study with new big sample to investigate the real fact whatever may exist.

Study 6: Interaction of Treatment and I.Q v/s achievement:

Observation:

F value for interaction effect of treatment and I.Q. on achievement is found to be 0.631579. This is not significant at both levels.

Conclusion:

There is no significant interaction effect of treatment and I.Q. on achievement of the students in mathematics.

Study 7: Interaction of Treatment and SES v/s achievement:

Observation:
F value for interaction effect of treatment and SES on achievement is found to be 0.239178. This is not significant at both levels.

**Conclusion:**

There is no significant interaction effect of treatment and SES on achievement of the students in mathematics.

**Study 8: Interaction of sex and I.Q v/s achievement:**

**Observation:**

F value for interaction effect of sex and I.Q. on achievement is found to be 2.526316. This is not significant at both levels.

**Conclusion:**

There is no significant interaction effect of sex and I.Q. on achievement of the students in mathematics.

**Study 9: Interaction of Sex and SES v/s achievement:**

**Observation:**

F value for interaction effect of sex and SES on achievement is found to be 0.033634. This is not significant at both levels.

**Conclusion:**

There is no significant interaction effect of sex and SES on achievement of the students in mathematics.

**Study 10: Interaction of I.Q and SES v/s achievement:**

**Observation:**

F value for interaction effect of I.Q. and SES on achievement is found to be 0.452196. This is not significant at both levels.

**Conclusion:**

There is no significant interaction effect of I.Q. and SES on achievement of the students in mathematics.

**Study 11: Interaction of Treatment, sex and I.Q v/s achievement:**

**Observation:**
F value for interaction effect of treatment, sex and I.Q. on achievement is found to be 0.302709. This is not significant at both levels.

Conclusion:

There is no significant interaction effect of treatment, sex and I.Q. on achievement of the students in mathematics.

Study 12: Interaction of Treatment, sex and SES v/s achievement:

Observation:

F value for interaction effect of treatment, sex and SES on achievement is found to be 0.014949. This is not significant at both levels.

Conclusion:

There is no significant interaction effect of treatment, sex and SES on achievement of the students in mathematics.

Study 13: Interaction of Treatment, I.Q and SES v/s achievement:

Observation:

F value for interaction effect of treatment, I.Q. and SES on achievement is found to be 0.134538. This is not significant at both levels.

Conclusion:

There is no significant interaction effect of treatment, I.Q. and SES on achievement of the students in mathematics.

Study 14: Interaction of sex, I.Q and SES v/s achievement:

Observation:

F value for interaction effect of sex, I.Q. and SES on achievement is found to be 0.003737. This is not significant at both levels.

Conclusion:

There is no significant interaction effect of sex, I.Q. and SES on achievement of the students in mathematics.

Study 15: Interaction of treatment, sex, I.Q and SES v/s achievement:

Observation:
F value for interaction effect of treatment, sex, I.Q. and SES on achievement is found to be 0.239178. This is not significant at both levels.

Conclusion:

There is no significant interaction effect of treatment, sex, I.Q. and SES on achievement of the students in mathematics.

Study 16: Effect of Treatment on Boys

Observation:

The t-score for effect of treatment on boys' achievement is 2.791. This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for boys of experimental group and mean for boys of control group are 26.607 and 22.393 respectively. That is $M_{B,Exp} > M_{B,Cont}$.

Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of boys of experimental group is better than the boys of control group.
3. The laboratory teaching programme had improved the achievement of boys in mathematics.

Study 17: Effect of Treatment on Girls

Observation:

The t-score for effect of treatment on girls' achievement is 3.428. This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for girls of experimental group and mean for girls of control group are 26.928 and 22.357 respectively. That is $M_{G,Exp} > M_{G,Cont}$.

Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of girls of experimental group is better than the girls of control group.
3. The laboratory teaching programme had improved the achievement of girls in mathematics.
Study 18: Effect of Treatment on High I.Q. students

Observation:

t-score for effect of treatment on high I.Q. students achievement is 5.294. This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for high I.Q. students of experimental group and mean for high I.Q. students of control group are 31.178 and 26.321 respectively. That is $M_{hI.Q.\text{Exp}} > M_{hI.Q.\text{Cont}}$.

Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of high I.Q. students of experimental group is better than the high I.Q. students of control group.
3. The laboratory teaching programme had improved the achievement of high I.Q. students in mathematics.

Study 19: Effect of Treatment on Low I.Q. students

Observation:

t-score for effect of treatment on low I.Q. students achievement is 4.975. This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for low I.Q. students of experimental group and mean for low I.Q. students of control group are 22.357 and 18.428 respectively. That is $M_{lI.Q.\text{Exp}} > M_{lI.Q.\text{Cont}}$.

Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of low I.Q. students of experimental group is better than the low I.Q. students of control group.
3. The laboratory teaching programme had improved the achievement of low I.Q. students in mathematics.

Study 20: Effect of Treatment on High SES students

Observation:

t-score for effect of treatment on high SES students achievement is 3.25. This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for high SES students of experimental group and mean for high SES students of control group are 28.071 and 23.392 respectively. That is $M_{hSES.\text{Exp}} > M_{hSES.\text{Cont}}$.

Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of high SES students of experimental group is better than the high SES students of control group.
3. The laboratory teaching programme had improved the achievement of high SES students in mathematics.

**Study 21: Effect of Treatment on Low SES students**

**Observation:**

\[ t\text{-score for effect of treatment on low SES students achievement is } 3.074. \] This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for low SES students of experimental group and mean for low SES students of control group are 25.464 and 21.357 respectively. That is \( M_{\text{L,SES,Exp}} > M_{\text{L,SES,Cont}}. \)

**Conclusion:**

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of low SES students of experimental group is better than the low SES students of control group.
3. The laboratory teaching programme had improved the achievement of low SES students in mathematics.

**Study 22: Effect of Treatment on High I.Q. boys**

**Observation:**

\[ t\text{-score for effect of treatment on high I.Q. boys achievement is } 3.458. \] This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for high I.Q. boys of experimental group and mean for high I.Q. boys of control group are 31.642 and 26.642 respectively. That is \( M_{\text{hl,I.Q.B,Exp}} > M_{\text{hl,I.Q.B,Cont}}. \)

**Conclusion:**

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of high I.Q. boys of experimental group is better than the high I.Q. boys of control group.
3. The laboratory teaching programme had improved the achievement of high I.Q. boys in mathematics.

**Study 23: Effect of Treatment on High I.Q. girls**

**Observation:**

\[ t\text{-score for effect of treatment on high I.Q. girls achievement is } 4.047. \] This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for high
I.Q. girls of experimental group and mean for high I.Q. girls of control group are 30.714 and 26 respectively. That is $M_{hI.Q.G.Exp} > M_{hI.Q.G.Cont}$.

**Conclusion:**

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of high I.Q. girls of experimental group is better than the high I.Q. girls of control group.
3. The laboratory teaching programme had improved the achievement of high I.Q. girls in mathematics.

**Study 24: Effect of Treatment on Low I.Q. boys**

**Observation:**

$t$-score for effect of treatment on low I.Q. boys achievement is 4.102. This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for low I.Q. boys of experimental group and mean for low I.Q. boys of control group are 21.571 and 18.142 respectively. That is $M_{LI.Q.B.Exp} > M_{LI.Q.B.Cont}$.

**Conclusion:**

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of low I.Q. boys of experimental group is better than the low I.Q. boys of control group.
3. The laboratory teaching programme had improved the achievement of low I.Q. boys in mathematics.

**Study 25: Effect of Treatment on Low I.Q. girls**

**Observation:**

$t$-score for effect of treatment on low I.Q. girls achievement is 3.316. This is greater than the table value 2.672. It is significant at 0.01 level. Also the mean for low I.Q. girls of experimental group and mean for low I.Q. girls of control group are 23.142 and 18.714 respectively. That is $M_{LI.Q.G.Exp} > M_{LI.Q.G.Cont}$.

**Conclusion:**

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of low I.Q. girls of experimental group is better than the low I.Q. girls of control group.
3. The laboratory teaching programme had improved the achievement of low I.Q. girls in mathematics.
Study 26: Effect of Treatment on High SES boys

Observation:

\[ t\text{-score for effect of treatment on high SES boys achievement is } 2.123. \text{ This is greater than the table value } 2.06. \text{ It is significant at } 0.05 \text{ level. Also the mean for high SES boys of experimental group and mean for high SES boys of control group are } 28 \text{ and } 23.428 \text{ respectively. That is } M_{h\text{SES}.B.\text{Exp}} > M_{h\text{SES}.B.\text{Cont}}. \]

Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of high SES boys of experimental group is better than the high SES boys of control group.
3. The laboratory teaching programme had improved the achievement of high SES boys in mathematics.

Study 27: Effect of Treatment on High SES girls

Observation:

\[ t\text{-score for effect of treatment on high SES girls achievement is } 2.401. \text{ This is greater than the table value } 2.06. \text{ It is significant at } 0.05 \text{ level. Also the mean for high SES girls of experimental group and mean for high SES girls of control group are } 28.142 \text{ and } 23.3571 \text{ respectively. That is } M_{h\text{SES}.G.\text{Exp}} > M_{h\text{SES}.G.\text{Cont}}. \]

Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of high SES girls of experimental group is better than the high SES girls of control group.
3. The laboratory teaching programme had improved the achievement of high SES girls in mathematics.

Study 28: Effect of Treatment on Low SES boys

Observation:

\[ t\text{-score for effect of treatment on low SES boys achievement is } 1.844. \text{ This is not greater than the table value } 2.06. \text{ It is not significant at both levels.} \]

Conclusion:

There is no significant effect of treatment on achievement of low SES boys.

Study 29: Effect of Treatment on Low SES girls
Observation:

t-score for effect of treatment on low SES girls achievement is 2.501. This is greater than the table value 2.06. It is significant at 0.05 level. Also the mean for low SES girls of experimental group and mean for low SES girls of control group are 25.714 and 21.357 respectively. That is $M_{LSES.G.Exp} > M_{LSES.G.Cont}$.

Conclusion:

1. The substantive hypothesis is accepted.
2. The mean shows that achievement of low SES girls of experimental group is better than the low SES girls of control group.
3. The laboratory teaching programme had improved the achievement of low SES girls in mathematics.

6.4 Conclusions of the study:

A brief summary of the conclusions are listed below.

1. The laboratory teaching programme had significant effect on achievement of students in mathematics.
2. The main effect of I.Q. and SES on achievement of student in mathematics was significant.
3. Boys and girls did not differ significantly in their achievement.
4. The first order, second order and third order interactive effect of these four variables on achievement were not significant.
5. The laboratory teaching programme had significant effect on achievement of boys, girls, high I.Q. students, low I.Q. students, high SES students, low SES students, high I.Q. boys, high I.Q. girls, low I.Q. boys, low I.Q. girls, high SES boys, high SES girls, low SES girls in mathematics. The laboratory teaching programme had improved the achievement of above groups in mathematics.
6. There is no significant effect of treatment on achievement of low SES boys.

6.5 Educational Implication:

As the need for good methodology for teaching mathematics so as to improve the achievement and performance of students in the examinations, the study has thrown a light on the use of appropriate laboratory teaching method in normal class room atmosphere. Since the system of education in India is highly centralized, there is no scope for teacher initiation. Programmes like Laboratory Teaching Programme (LTP) could be profitably used by teachers with a little additional effort.

The educational Implications are as follows.
1. As a contribution to education in mathematics, it is worth while developing different kind of programme on concept of a laboratory teaching programme. Providing guidance in the establishment of such a laboratory in a school, describing the lay-out, equipments required and enumerating the activities in such a laboratory environment. This programme may serve as a source for such activities.

2. The teacher can build these programmes into his daily lesson plans wherever appropriate.

3. The traditional method of teaching mathematics can be integrated by these programmes to improve achievement of students.

4. This type of work can bring a change in the outlook of the teacher and make him more creative and enrich their teaching experience.

5. It does not require any costly or elaborate equipment. The normal teacher also can prepare these equipments.

6. It does not disturb the official plan or not require additional time. It can be fit in normal classroom time table.

The ultimate result of the study revealed that, LTP is more effective instructional paradigm for teaching mathematics as compared to traditional method of teaching.

6.6 **Recommendations:**

The following recommendation were made base on the finding on the study.

1. Mathematics teacher should use LTP in teaching of mathematics.
2. Government should establish mathematics laboratory in all schools like other science subjects laboratories.
3. Mathematics laboratory should be made an integral part of curriculum of mathematics.
4. Seminars and workshops should be organized for mathematics teachers in secondary school on use and development of mathematics laboratory.
5. Mathematics student teachers (B.Ed. students) should be trained for the use of mathematics laboratory in their mathematics methodology class.
6. Government has to introduce mathematic laboratory in B.Ed. colleges.
7. A specific curriculum in the form of credits shall be prescribed as regular syllabus for mathematics laboratory and could be made it mandatory for the students to complete. Also process of evaluation and assessment shall be implemented in useful manner.
6.7 Suggestion for further research:

More intension and valuable research work is desired by the research works in the directions opened up by this investigation. A few related aspects are suggested for the further research on the following areas.

1. L.T.P could be prepared for other standards.
2. L.T.P could be implemented in the state other than Gujarat.
3. L.T.P could be developed for English medium school also.
4. Introduce computer in laboratory teaching programme as a tool by using some software related to mathematics.

Following few problems are indicated for further research.

1. A study of the effect of LTP in mathematics on achievement of student of standard IX, X.
3. An investigation into development of LTP in various standards to study its effect on school performance.
4. A study of the effectiveness of LTP on the achievement of the English medium pupils in mathematics of standard VIII.
5. A study of LTP in mathematics, in relation to the pupil’s general creativity and creative personality.
6. A study of effectiveness of computer assisted teaching method and laboratory teaching method on achievement of students in mathematics.