CHAPTER – VI
SUMMARY AND CONCLUSION

6.1 INTRODUCTION

One of the basic attempts in research is to summarize the findings, discussion, explain the educational implications of the study, recommendations, suggestions for further research and arrive at some conclusions.

The analysis and interpretation of data is not enough to fulfil the criteria for research work. The analysis and interpretation of data should be converted into findings. On the basis of important findings, discussion, implications of the study, recommendations, suggestions for further research and conclusion are drawn out.

In this chapter, the objectives of the study, hypotheses of the study and collection of data are also presented in brief. This chapter contains findings, discussion, implications of the study, recommendations, suggestions for further research and conclusion.

The present world is the world of science and technology. Science is the most inexhaustible storehouse of knowledge. Continuous advances in scientific and technological research have led to the growth and greater application of science in contemporary society. The purpose of science education is to give individuals a firm grasp of the concepts and processes of science and to develop scientific attitude, scientific reasoning, problem
solving ability and scientific temper and to impart them the ability to use the scientific method to other situations in life. Hence science education has been included in school curriculum at all levels. It is however necessary that science teaching be impressive so as to inculcate its values in young minds.

Research work is being continuously done in the field of science and also in the related teaching methods and materials. In order to keep pace with the development of science, the need for new instructional strategies was greatly felt. One such innovative teaching strategy, called multimedia programme, has been chosen and studied by the investigator in this research work.

Upgrading Biology curriculum by introducing Human anatomy demands a change in the instructional strategy. The need for developing an instructional strategy for teaching Human anatomy and physiology is very important to make the teachers and students aware of the scientific principles that govern the advances being made in medicine. The functions of the internal organs of human body can be easily explained through a multimedia programme. This also saves the use of expensive chemicals and sophisticated instruments which are beyond the reach of higher secondary schools. In schools, the required equipment to explain the human anatomy is not available. In this situation, the working mechanism of internal organs can be explained by a multimedia programme, which when used as an instructional strategy will make the task of learning human anatomy easier, effective and less expensive.
6.2 NEED FOR THE PRESENT STUDY

Computer and multimedia technology for education offers a number of benefits. They allow the teacher to structure and present the information with varying special effects to the students. They can also be used for the storage of audio-visual information of various types. Multimedia programmes provide a lot of benefits. The benefits for learners include flexibility of scheduled instruction at a location convenient to learners, reduced student time, assured progress in skill development, increased achievement and increased retention and continuous report to the learners of progress and accomplishments, specified performance criteria, good response and feedback.

The application of multimedia programme would definitely create a good learning environment in classroom, sustaining attention and motivating the students to learn effectively. The application of multimedia may create a congenial learning climate in schools and can bring real life situations.

The investigator has chosen the topic for the present study in order to address the problem faced by teachers, teaching science, to foster involvement in new teaching approaches, to get a feeling of satisfaction through learning in the classroom, to create joyful learning environment and to stimulate active information processing for effective learning,
6.3 STATEMENT OF THE PROBLEM

In a vast country like India, enormous work is now being done in the field of education, but it is still not possible to equip each and every school with all the facilities for teaching science. Secondary schools need high quality teaching aids. Multimedia, as a teaching aid, is very much effective with colour, sound and graphics, which are found in the audio, video movie media. Any diagram can be explained in detail with 3D effects, which helps the students understand clearly. The students can get a live vision of life’s aspects and scientific factors. Multimedia includes use of computer. Therefore, the present study aims to find out the “Effectiveness of multimedia programme in perceiving human anatomy among higher secondary students”.

6.4 OBJECTIVES OF THE STUDY

1. To develop a Multimedia Programme for the unit of Human anatomy from XI standard Zoology subject in order to teach the higher secondary students.

2. To find out the effectiveness of Multimedia Programme in teaching Human anatomy among higher secondary students.

3. To find out the effectiveness of multimedia programme on attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills.
4. To find out the difference in the performance in human anatomy between the high achievers and low achievers.

5. To find out the relative retention of learning human anatomy of experimental group students.

6. To find out the relationship among the variables: performance in human anatomy, attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills among the experimental group students.

6.5 HYPOTHESES OF THE STUDY

The following hypotheses are formulated to set the research in the right perspective:

1. There is no significant difference between the control and experimental group students in their performance in human anatomy in the pre test.

2. There is no significant difference between the control and experimental group students in their attitude towards Biology, achievement motivation, attention and perceptive skills in the pre test.

3. There is no significant difference between the control and experimental group students in their performance in human anatomy in the post test.
4. There is no significant difference between the control and experimental group students in their attitude towards Biology, achievement motivation, attention and perceptive skills in the post test.

5. There is no significant difference between the pre and post test mean scores of control group students in the performance in human anatomy.

6. There is no significant difference among the pre test, progress test-I, progress test-II and post test mean scores of experimental group students in the performance in human anatomy.

7. There is no significant difference between the pre and post test mean scores of control group students in the attitude towards Biology, achievement motivation, attention and perceptive skills.

8. There is no significant difference between the pre and post test mean scores of experimental group students in the attitude towards Biology, achievement motivation, attention and perceptive skills.

9. There is no significant difference between the pre and post test mean scores of experimental group students in their attitude towards multimedia programme.

10. There is no significant difference in the performance in human anatomy between the high achievers and low achievers.
11. There is no significant difference between the post test and retention test mean scores of experimental group students in the performance in human anatomy.

12. There is no significant relationship among the variables: performance in human anatomy, attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills among the experimental group students.

6.6 ASSUMPTIONS OF THE STUDY

The following are the assumptions of the study:

1. Multimedia programme has an impact on the academic achievement of learners of all categories.

2. It is possible to develop a Multimedia programme for teaching human anatomy to help the higher secondary students understand biological concepts.

3. The developed Multimedia programme could be administered to the higher secondary students to learn biological concepts.

4. The effectiveness of Multimedia programme could be studied.
5. The Multimedia programme may bring out attitudinal and behavioural changes towards the subjects as well as multimedia programme among the learners.


7. The Multimedia programme may increase the retention power of the students.

8. The Multimedia programme could hold attention of students.

9. The Multimedia programme may accelerate the understanding ability of the students.

10. The Multimedia programme may motivate the students to involve in teaching-learning process effectively.

6.7 DELIMITATIONS OF THE STUDY

1. This investigation is confined only to Annai Teresa Government Girls Higher Secondary School, Karaikal, which is affiliated to Tamil Nadu State Board.

2. This investigation is confined only to XI standard Biology group students in English medium.
3. All the 52 students in the XI standard Biology group were selected for experimental and control groups.

4. The investigator adopted control group and experimental group design.

5. The present study is confined only to develop a multimedia programme for teaching human anatomy from XI standard Zoology subject prescribed by the Tamil Nadu State Board Syllabus.

6. The contents, Circulation, Respiration, Excretion and Reproduction alone were covered for the development of Multimedia programme.

7. The contents are closely based on materials contained in the higher secondary Zoology book prescribed for the State Board of Secondary Education published by Tamil Nadu Government.

8. The study was conducted for only 6 weeks.

9. Students were restricted to 26 in control group and 26 in experimental group.

10. The present study is confined to find out the effectiveness of multimedia programme on the academic achievement, attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills and to increase retention power.
6.8 SCOPE OF THE STUDY

The present study aims at developing and using Multimedia programme for perceiving human anatomy for higher secondary students to enable them to understand the concepts very easily through individualized instructional technique. It is maintained that the Multimedia programme may reduce monotony in the classroom by bringing out real life situations and motivate them for self-study and provides opportunities for individual pace and ability.

The study intends to develop a multimedia programme for human anatomy for XI standard Zoology subject prescribed by Tamil Nadu State Board Syllabus and find out the effectiveness of the Multimedia programme through experimentation in perceiving human anatomy among the higher secondary students. The study provides scope for the development and use of many Multimedia programmes in the concerned discipline as well as other disciplines for the benefit of learners of different categories. Hence the multimedia programme can be used as an individualized instructional technique for the students of different categories in the science subjects as well as other subjects.

6.9 RESEARCH DESIGN OF THE STUDY

The present study seeks to measure the effectiveness of multimedia programme in perceiving human anatomy among higher secondary students. The experimental method can be used for this study.
According to Best, John W. (1997), experimental design is the blueprint of the procedures that enable the researcher to test hypothesis by reaching valid conclusions about relationships between independent and dependent variables. In the present study the investigator has followed the experimental group design.

**6.10 TOOLS USED FOR THE STUDY**

1. Development of multimedia programme for human anatomy by the investigator.

2. Achievement test in Human Anatomy (Developed and validated by the investigator)

3. Attitude Scale towards Biology (Developed and validated by the investigator)

4. Attitude Scale towards Multimedia Programme (Developed and validated by the investigator)

5. Achievement Motivation Scale (Beena Shah, 1986)

6. Attention Inventory Scale (Developed and validated by the investigator)

7. Perceptive skills assessment Scale (Developed and validated by the investigator)
6.11 DATA COLLECTION

It consists of administration of pre test, implementation of multimedia programme, administration of progress test-I, administration of progress test-II, administration of post test and administration of retention test.

6.11.1 Administration of pre test

The pre test for achievement in human anatomy, attitude towards Biology, attention and perceptive skills were constructed and validated by the investigator and the same were administered to the subjects of both control and experiment groups in order to assess their entry behaviour. The Achievement motivation Scale (Beena Shah, 1986) was administered to the subjects of both control and experimental groups. The pre test for attitude towards multimedia programme, was constructed and validated by the investigator and the same was administered to the subjects of experiment group.

6.11.2 Implementation of multimedia programme to experimental group

The subjects of the experimental group were allowed to learn human anatomy through multimedia programme for a period of 6 weeks.
6.11.3 Implementation of traditional method to control group

The subjects of control group were exposed to the traditional method of teaching for a period of 6 weeks.

6.11.4 Administration of progress test-I and progress test-II

At the end of the second week, a progress test-I for achievement in human anatomy was administered to experimental group students. At the end of the fourth week, a progress test-II for achievement in human anatomy was administered to experimental group students.

6.11.5 Administration of post test

At the end of the experiment, the post test for achievement in human anatomy, attitude towards Biology, achievement motivation, attention and perceptive skills was administered to the subjects of both control group and experimental groups. The post test for attitude towards multimedia programme was administered to the subjects of experimental group.

6.11.6 Administration of retention test

Retention test for achievement in human anatomy was administered to the subjects of experimental group at the end of one month of treatment.
Thus pre test, progress test-I, progress test-II, post test and retention test scores on achievement in human anatomy, and pre test and post test scores on attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills were computed for analysis.

6.12 STATISTICAL TECHNIQUES USED FOR DATA ANALYSIS

In the present study, the relevant data obtained from assessment scores of 52 students on the pre test, progress test-I, progress test-II, post test, retention test on achievement in human anatomy, and pre test and post test scores on attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills have been analyzed as follows:

The scores on the pre test, progress test-I, progress test-II, post test, retention test on achievement in human anatomy, and pre test and post test scores on attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills were converted into percentage.

6.12.1 Descriptive analysis

It provides information about the nature of a particular group of individuals. Mean and Standard deviation were calculated for pre test, progress test-I, progress test-II, post test, retention test on achievement in human anatomy and for pre test and post test on attitude towards Biology,
attitude towards multimedia programme, achievement motivation, attention and perceptive skills.

### 6.12.2 Differential analysis

It provides inferences involving determination of statistical significance of the difference among the students with reference to selected variables namely, pre test, progress test-I, progress test-II, post test and retention test on achievement in human anatomy, pre and post test on attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills. It involves ‘t’ test for small sample.

### 6.12.3 Relational analysis

Relational analysis aims at finding out the relationship between two variables. Product moment correlation was used to find the relationship among the variables: performance in human anatomy, attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills among the experimental group students.
6.13 FINDINGS OF THE STUDY

The findings of the study are:

1. There is no significant difference between the control and experimental group students in their performance in human anatomy in the pre test. This shows that both control and experimental group students have the same level of performance in human anatomy in the pre test.

2. There is no significant difference between the control and experimental group students in their attitude towards Biology, achievement motivation, attention and perceptive skills in the pre test. This shows that both control and experimental group students have the same level of attitude towards Biology, achievement motivation, attention and perceptive skills in the pre test.

3. There is significant difference between the control and experimental group students in their performance in human anatomy in the post test. This shows that the level of performance in human anatomy of the experimental group students is higher than that of control group students after the treatment.

4. There is significant difference between the control and experimental group students in their attitude towards Biology, achievement motivation, attention and perceptive skills in the post test. This shows that the experimental group students have improved well in their attitude towards
Biology, achievement motivation, attention and perceptive skills than that of control group students after the treatment.

5. There is significant difference between the pre and post test mean scores of control group students in the performance in human anatomy. This shows that the control group students have improved in their performance in human anatomy in the post test.

6. There is significant difference among the pre test, progress test-I, progress test-II and post test mean scores of experimental group students in the performance in human anatomy. This shows that the level of the performance of experimental group students is higher in the post test than the pre, progress test-I and progress test-II.

7. There is no significant difference between the progress test-II and post test. This shows that the experimental group students have the same level of performance in the progress test-II and the post test.

8. There is no significant difference between the pre and post test mean scores of control group students in the attitude towards Biology, achievement motivation, attention and perceptive skills. This shows that the control group students have the same level of attitude towards Biology, achievement motivation, attention and perceptive skills in the pre and post test.

9. There is significant difference between the pre and post test mean scores of experimental group students in the attitude towards Biology,
achievement motivation, attention and perceptive skills. This shows that the experimental group students have improved well in their attitude towards Biology, achievement motivation, attention and perceptive skills in the post test than the pre test.

10. There is significant difference between the pre and post test mean scores of experimental group students in their attitude towards multimedia programme. This shows that the experimental group students have showed more favourable attitude towards multimedia programme in the post test than the pre test.

11. There is significant difference in the performance in human anatomy between the high achievers and low achievers of control group in the pre test and also in the post test. This shows that high achievers scored better than that of low achievers of control group in the pre test and the post test.

12. There is significant difference in the performance in human anatomy between the high achievers and low achievers of experimental group in the pre test. This shows that high achievers scored better than that of low achievers of experimental group in the pre test.

13. There is no significant difference in the performance in human anatomy between the high achievers and low achievers of experimental group in the post test. This shows that the level of performance of high achievers is higher in the post test and also the level of performance of low achievers is similar to that of high achievers of experimental group.
14. There is significant difference between the post and retention test mean scores of the experimental group students in their performance in human anatomy. This shows that the level of performance of experimental group students in the retention test is slightly lower than the post test. It shows that multimedia programme makes the students retain the knowledge for a long time.

15. There is significant relationship among the variables: performance in human anatomy, attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills among the experimental group students.

### 6.14 DISCUSSION

better in human anatomy after the treatment, which shows the more effectiveness of multimedia programme. The pre test performance scores of the experimental group and control group students showed that the two groups did not differ significantly. But the comparison of the post-test scores of the control group and the experimental group showed that the experimental group performed significantly better than that of the control group students in human anatomy after the treatment, which shows the superiority of multimedia programme.

The studies of Nimavathi and Ganadevan (2007) pointed out that students of experimental group showed favourable attitude towards science and Thilaka Suresh (2000) found that experimental group students had favourable attitude towards science after learning Biotechnology through CAI. The findings of the present study reveal that the experimental group students produced more positive attitude towards biology after learning human anatomy through multimedia programme.

The studies of Chanlin (1996) suggested that animated graphics plus metaphorical treatment enhanced motivation the most and Annaraja (2005) indicated that the use of power point presentation has improved the knowledge, understanding and skill levels of the students and also found that this may be due to the fact that the animation effect of the slides motivated the students in learning. The findings of the present study reveal that the multimedia programme enhanced students’ motivation the most to learn effectively.
Annaraja (2005) indicated that the use of power point presentation has improved the knowledge, understanding and skill levels of the students and also found that the effect of the colour of the slides draws the attention of the learners in learning. She, Hsiao-Ching (2009) showed that the group which used multimedia learning material had a greater amount of visual attention than the group who did not use the same. The findings of the present study reveal that the experimental group students who used multimedia programme had a greater amount of attention in learning than the control group who did not use.

The studies of Dalacosta (2009) showed that the use of animated cartoons significantly increases the young students' knowledge and understanding of specific science concepts, which are normally difficult to comprehend and often cause misconceptions to them. Perry and Perry (1998) concluded that the experimental group students who used multimedia were able to understand difficult concepts better. The findings of the present study indicate that the multimedia programme increases the students’ understanding of concepts of human anatomy, which are normally difficult to comprehend and often cause misconceptions to them.

The studies of Bhardwaj (1990), Tajudeen (1997), Wiksten (2002), Latha Isabel (2004), Nimavathi (2007) and Djeassilane (2008) pointed out that the experimental group students showed the favourable attitude towards computer. The findings of the present study indicate that the experimental group students showed more favourable attitude towards multimedia programme.
The studies of Purushothaman and Stella (1991) proved that the time taken by the computer assisted instruction group was nearly two-thirds of the time taken by the traditional group to complete the instruction on the selected topic. The findings of the present study reveal that the pre test, progress test-I, progress test-II performance scores of experimental group students in human anatomy differ significantly. But the progress test-II and post test performance scores in human anatomy did not differ significantly which shows the multimedia programme facilitates the students in completing the content within a short period.

The studies of Stella (1992) proved that i) CAL was an effective individualized instructional technique that helps underachievers reach their optimum expected level of achievement, ii) It was found to be more effective for underachievers than both the normal and over achievers in terms of achievers in terms of achievement, iii) it was clearly seen that some of the normal achievers could be helped to become over achievers and the over achievers too could be helped to score better, though their gain was not found to be statistically significant. In another study Purushothaman and Stella (1991) proved that the CAI was more beneficial to the low and average achievers than the high achievers. The studies of Reddy (1996) indicated that the achievement of experimental group slow learners was higher than the achievement of control group slow learners. Cox, Robert (1999) pointed out that the higher scoring students in the classroom showed little difference in either media, while low scoring students uniformly scored higher on multimedia-based materials. The reduced variation in student performance based on test scores in the CD-ROM instruction indicates the positive effects of multimedia-based
instruction. Haseen Taj (2004) indicated that the multi-media package helped the slow learners to perform on par with the normal learners. The findings of the present study reveal that the high achievers of experimental group scored better in the post test and the low achievers of experimental group scored significantly better equal to that of high achievers in the post test. It shows that the multimedia programme facilitates the high achievers to perform better and the low achievers to perform equal to that of high achievers.

The studies of Beerman (1996), Perry and Perry (1998), Tseng (2004), Lim, Burt and Rutter (2005), Razavi (2005), O’Day, Danton (2007) and She, Hsiao-Ching (2009) showed that the experimental group students had greater long-term retention. The findings of the present study show that the level of performance of experimental group students in human anatomy differs significantly in the post and retention test. But when compared the mean scores of the post and retention test; there is minimum difference which shows the supremacy of multimedia programme in retaining the knowledge for a long time.

The study of Tajudeen (1997) found out that there is a positive correlation between the attitude towards computers and the achievement score of the experimental group. The findings of the present study indicate that there is a significant relationship among the variables: performance in human anatomy, attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills among the experimental group students.
6.15 EDUCATIONAL IMPLICATIONS OF THE STUDY

The following are the educational implications of the study, based on the findings of the present investigation.

The present study reveals that the experiment group students who used multimedia programme performed significantly better than that of the control group students who did not use, which implies that the multimedia programme has tremendous impact upon the performance in human anatomy than the students learning through traditional method. This proves the effectiveness of the multimedia programme in human anatomy developed by the investigator.

The present study reveals that the performance of the control and experimental group students in the post test is significantly higher than the pre test. But the performance of the experimental group students in the post test is more significantly higher than the post test performance of control group students. Thus, it proves the supremacy of the multimedia programme over traditional method.

In the present study, it is found that the experimental group students developed more favourable attitude towards Biology after learning human anatomy through multimedia programme than those who learn through the traditional method. It is also found that the students learning through multimedia programme developed more achievement motivation, attention and perceptive skills than those who learn through the traditional method, which implies that the multimedia programme has an impact on attitude
towards Biology, achievement motivation, attention and perceptive skills. Hence it can be inferred that multimedia programme motivates the students to learn effectively and holds the attention by 3D animated picture and increases the students’ understanding ability in learning human anatomy. This proves the effectiveness of the multimedia programme in human anatomy developed by the investigator.

From the present study, it is found that the students learning through multimedia programme have more favourable attitude towards multimedia programme after the treatment, which implies that the multimedia programme has an impact on attitude towards multimedia programme. This proves the effectiveness of the multimedia programme developed by the investigator.

The present study reveal that the level of performance of experimental group students in human anatomy differs in the pre test, progress test-I, progress test-II and post test. But the level of performance in human anatomy is same in the progress test-II, and post test, which implies that the multimedia programme facilitates the students in completing the content within a short period. This proves the effectiveness of the multimedia programme in human anatomy developed by the investigator.

The present study reveals that the high achievers of experimental group scored better and low achievers of the same group scored equal to that of high achievers in the post test which implies that the multimedia programme facilitates the high achievers to score better and the low
achievers to score equal to that of high achievers. This is further proof of the supremacy of multimedia programme over conventional method.

The present study reveals that the level of performance of experimental group students in human anatomy differs significantly in the post and retention test. But when compared the mean scores of the post and retention test; there is the minimum difference, which implies when the students are exposed to the colourful, animated 3D pictures, the information is retained in the mind for a long time. This proves the effectiveness of the multimedia programme in human anatomy developed by the investigator.

In the present study, it is found that there is significant relationship among the variables: performance in human anatomy, attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills among the experimental group students.

6.16 RECOMMENDATIONS OF THE STUDY

The present study reveals the effectiveness of multimedia programme for perceiving human anatomy. It is recommended that more such multimedia programme in the relevant as well as in the related fields may be developed so as to enable the students achieve mastery over the subjects according to their own pace and ability.
It is recommended that multimedia programmes be developed as they enhance the teaching-learning, motivate and hold the attention of the students and is suitable for all categories of students.

It is also recommended that the schools purchase the multimedia packages that are developed by professional experts working in multinational companies.

Now-a-days all the schools are equipped with computer lab. Many copies of multimedia packages can be taken from a single original package. Since this multimedia programme involve practically no additional financial commitments for education department, the educational administrators will find it financially feasible for implementation of strategies in teaching Biology as well as other subjects in all the schools in both rural and urban areas.

In teacher training institutes, training related to developing multimedia programme in teaching of science and the usage of them in the classrooms should be given to the student teachers.

As the teachers working in schools have to cope with revolution in education, the schools should encourage and provide opportunities for teachers to develop such multimedia programme in their respective disciplines. It is recommended that the NCERT and Department of education can organize training programmes, workshops and seminars to train the teachers to develop the multimedia programmes. So as to facilitate widespread use of multimedia programme by teachers the training
programme must be given to the graduate and post graduate teachers in all disciplines.

Frequent transfer of teachers, inadequate staff, vacant positions of teachers and carelessness of teachers are some of the vital reasons for the poor performance of the students in a real class room, particularly in the government schools and in the rural area. This can be solved by implementation of multimedia programme.

Now-a-days new techniques of teaching strategies are being alienated from Indian classrooms because of lack of awareness regarding the new techniques and also because of the belief that these strategies are time consuming and not suitable to classroom situation. The investigation highlights the importance and feasibility of such multimedia programmes it as an ideal means of learning process. For this the educational administrators should have thorough awareness about the new techniques and strategies and should have a positive attitude and willingness to apply the strategies in the class room; then only they can contribute much towards the effective teaching process.

6.17 SUGGESTIONS FOR FURTHER RESEARCH

To overcome the limitations of the present study and to extend the research findings of the study, a few suggestions are given below for further research.
In the present study, only one unit namely human anatomy from XI standard Zoology syllabus has been selected for development of multimedia programme. The study can be extended by covering entire syllabus in Zoology also.

The present investigation was carried out to find the effectiveness of multimedia programme in perceiving human anatomy. It is suggested to conduct the study with other subjects like Physics, Chemistry, Zoology, Botany, Mathematics, English, Tamil etc.

The present study covers only the English medium students. It can also cover the Tamil medium students also.

Multimedia programme is a boon to the special education learner. Hence attempts may be made for producing the multimedia programme for this section of the society and their effectiveness may be studied through experimental study.

The present study was carried out with a sample of science group students in Government Higher Secondary School, Karaikal. So it is suggested that the study of the above may be conducted for other schools within the district and other districts.

In the present study, sample of the government school alone was attempted. Hence the study can be extended to sample of private schools also. The present study alone was carried out with girls students. Hence the study can be carried out with both genders. The present study was done in
higher secondary school in an urban area. Hence the study can be extended to the schools in rural areas.

It is suggested that the investigation may be extended to pre-primary and primary level where the children are in their critical stage of intellectual development. Further, it can be extended to secondary, graduate and post graduate levels to find out the effectiveness.

The present study was confined to the following variables: achievement in human anatomy, attitude towards Biology, attitude towards multimedia programme, achievement motivation, attention and perceptive skills associated with multimedia programme in perceiving human anatomy. Effect of other variables associated with multimedia programme may be explored and their influence upon the learning can be studied.

6.18 CONCLUSION

The present study has found out that the multimedia programme is very effective in perceiving human anatomy at higher secondary level. As the present teaching-learning process in higher secondary classes is very rigid, time bound and outmoded, it was proposed to use multimedia programme.

As multimedia programme develops a favourable attitude towards Biology as well as multimedia programme, motivates the students to involve in the process of learning, attracts students’ attention in learning, accelerates the students’ understanding of concepts of subjects, increases
the retention power and that it is highly suitable for all categories of students ranging from low to high achievers, it is suggested that this multimedia programme be widely adopted and implemented in educational institutions as computer laboratory facilities are available in all the schools and colleges to enable the learners to learn the subjects of their choice according to their own pace and ability. Learning through multimedia programme is very easy, understandable and comfortable to all categories of students for all types of subjects.