Chapter VI

SUMMARY OF FINDINGS, CONCLUSIONS AND SUGGESTIONS

- The study in Retrospect
- Major Findings of the Study
- Interpretation and Conclusion of Results
- Educational Implications of the Study
- Suggestions for Further Research
SUMMARY OF FINDINGS, CONCLUSIONS AND SUGGESTIONS

This chapter summarises the entire study done. It provides an overall view of the major findings, conclusions, educational implications and suggestions resulting from this study.

THE STUDY IN RETROSPECT

The study aimed at development of a training module for teachers to transact Biology curriculum for developing moral values in secondary school students. 'Value-oriented education' is the need of the hour. But it is not an easy job. From the study it is proved that a teacher with special training on selected strategies of value education can develop these values in their students.

First of all training was given to 30 select teachers to analyse the content of Biology, which is rich in values and found out the values inherent in them. Then training was given to transact the select values through the model Jurisprudential Inquiry Model, JIM. The whole training procedure later was transformed to develop a module because of its positive effect in value inculcation. Thus, this study is providing a self-learning material in the form of a module for Biology teachers to analyse the values inherent in the
content of Biology and to transact them through the Jurisprudential Inquiry Model of Teaching.

Restatement of the problem

The problem of the present study is entitled as "DEVELOPMENT OF A TRAINING MODULE FOR TEACHERS TO TRANSACT BIOLOGY CURRICULUM FOR DEVELOPING CERTAIN MORAL VALUES IN SECONDARY SCHOOL PUPILS".

Objectives

The objectives of the present study are as follows

1. To train teachers to transact Biology curriculum for developing certain moral values in secondary school pupils.

2. To develop a training module based on the above procedure.

Hypotheses

The hypotheses formulated for the study are as follows

1. There will be a positive effect for the training given to develop moral values identified from the secondary school Biology curriculum which is transformed into a module.
2. The effect of training given for developing moral values, which is presented in the module, will be longlasting as evidenced by the retention of the same.

Methodology

The methodology of the study is provided below in brief.

a) Design of the Study

The study was first conducted as an experimental one as the investigator wanted to develop a training module for teachers to transact Biology curriculum for developing certain moral values in secondary school pupils. The study gave training to selected Biology teachers first to analyse the Biology content of the curriculum of standards VIII, IX and X to find out moral values hidden in them and secondly training was given to transact these values through a particular model of teaching, Jurisprudential Inquiry Model of Teaching. The complete training procedure was transformed to a module after finding out its positive effect through statistical analysis.

b) Variables of the Study

The two variables treated in the study are,

1. Dependent Variable: The development of moral values in secondary school pupils.
2. **Independent Variable**: The training given to teachers to transact Biology curriculum, which was later developed as a module.

c) **Sample for the study**

The sample for the training was 30 Biology teachers who were willing to participate in the study and practice the training in their classes. The sample selected were from three regions, viz., Thrissur, Manjeri and Calicut University Campus which ensured a coverage of two complete districts.

The treatment and tests were applied to 1094 students of standard IX who were the students of the 30 trained teachers in their schools.

d) **Tools used for the study**

The following tools were used for the study

1. Test of moral values for secondary school students.

2. Eight value based lesson plans on JIM to develop the identified moral values from the Biology curriculum which are later transformed to a module.

e) **Statistical techniques used for the study**

Test of significance of the difference between two correlated means.
MAJOR FINDINGS OF THE STUDY

The analysis was done on the major variable Moral Values and its components Moral Awareness, Moral Thinking, Moral Action and Moral Attitude. The major findings of the study are given below.

1. Comparison of Mean Scores of the Select Variables between the Pre-test and Post-test for the Total Sample.

The differences in mean scores of all the select variables between the pre-test and post-test for the total sample showed significance at 0.01 level.

2. Comparison of Mean Scores of the Select Variables between the Pre-test and Post-test for the students of Individual Teacher Samples (30).

Of the 30 teachers 22 teachers (73%) showed significantly higher mean scores for the major variable 'Moral Values' after the transaction of the select eight values using the special lesson plans based on JIM.

Of the 30 teachers 16 teachers (53%) could show a significantly higher mean score for the variable 'Moral Awareness' after the transaction of the same eight values.

Six teachers out of 30 (20%) could show a significantly higher mean score for the variable 'Moral Thinking' after the transaction of the same lessons.
Ten teachers out of the 30 (33%) could show a significantly higher mean score for the variable 'Moral Action' after the transaction of the same eight values.

Of the 30 teachers 11 teachers (37%) could show a significantly higher mean score for the variable 'Moral Attitude' after the transaction of the same eight lessons.

Of the four components of Moral Values namely Moral Awareness, Moral Thinking, Moral Action and Moral Attitude, it is found that the lessons are capable of developing Moral Awareness to a moderate extent. But Moral Attitude and Moral Action are developed to a less extent and Moral Thinking to the least extent. Still all the five variables have shown an increase from their entry condition it shows the lessons had a positive effect.

3. Comparison of Mean Scores of the Select Variables between the Pre-test and Post-test for the Students of Male and Female Teachers.

The critical ratios obtained for Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude were -6.57, -6.16, -3.26, -5.44 and -4.51 respectively for the students of Male teachers. All these values showed significance at 0.01 level.
The comparison of the mean scores of the select variables between the pre-test and post-test for the students of Female teachers found that all the variables showed significance at 0.01 level.

4. Comparison of Mean scores of the Select Variables between the Pre-test and Post-test for the students of Three Regions, viz., Thrissur, Manjeri and Calicut University Campus Regions.

Comparison shows that mean scores of all the select variables showed significance at 0.01 level in the case of Manjeri region. In the case of Thrissur region, all the critical ratios except Moral Thinking showed significance at 0.01 level and those of Moral Thinking showed significance at 0.05 level. In Calicut University Campus region, it is found that all the critical ratios of the variables except 'Moral Thinking' showed significance at 0.01 level and 'Moral Thinking' had no significance at any level.

5. Comparison of Mean Scores of the Select Variables between the Pre-test and Post-test for Boys and Girls.

In both Boys and Girls critical ratios of all the select variables showed significance at 0.01 level.

6. Comparison of Mean Scores of the Select Variables between the Pre-test and Post-test for the Students of Government and Aided schools.
All the t-values of the select variables showed significance at 0.01 level in both Government and Aided schools.

7. Comparison of Mean Scores of the Select Variables between the Pre-test and Post-test for the Students of Urban and Rural Schools.

The means of the pre-test and post-test for the select variables were compared and found that all the t-values showed significance at 0.01 level in the students of Rural schools.

In the case of urban schools, the critical ratios obtained for the select variables Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude were -6.92, -6.68, -1.74, -4.50 and -3.36 respectively. All the critical ratios except 'Moral Thinking' showed significance at 0.01 level.

8. Comparison of Mean Scores of the Select Variables between the Pre-test and Post-test for the Students of Co-educational, Boys-only and Girls-only Schools.

In co-educational schools, the critical ratios obtained for all the select variables showed significance at 0.01 level.

In Girls-only schools the critical ratios obtained were -4.18, -2.07, -1.00, -2.43 and -3.00 for Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude respectively. Moral Values and Moral Attitude found significant at 0.01 level and t-values of Moral Awareness and
Moral Action showed significance at 0.05 level and Moral Thinking had no significance at any level.

In Boys-only schools, the critical ratios obtained for Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude were -4.05, -3.77, -0.67, -3.68 and -1.62 respectively. The t-values of Moral Values, Moral Awareness and Moral Action showed significance at 0.01 level, and Moral Thinking and Moral Attitude had no significance at any level.

9. Comparison of Mean Scores of the Select Variables between the Post-test and Retention test for the Total Sample.

The mean scores of the select variables were compared for significance and thus got the scores 4.55, 2.34, 4.04, 4.61 and 4.68 respectively for Moral values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude. All the t-values obtained were higher than the level of significance. The result shows that the retention test mean scores were lower than post-test means and hence it is found that the retention of the variables is not found for the total sample.

10. Comparison of Mean Scores of the Select Variables between the Post-test and Retention test for the Students of Male and Female Teachers.

The means of post-test and Retention test were compared for
significant difference and the critical ratios obtained were 1.88, 0.86, 2.16, 1.87 and 2.40 for Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude respectively for the students of Male teachers. From the results it is found that Moral Values, Moral Awareness and Moral Action were retained by the students of Male teachers.

In the case of Female teachers, these t-values were 4.24, 2.20, 3.41, 4.25 and 4.02. From this, it is found that all the critical ratios exceed the level of significance.

11. Comparison of Mean Scores of the Select Variables between the Post-test and Retention test for Boys and Girls.

The t-values obtained were 4.22, 2.58, 4.57, 4.21 and 3.93 respectively for the variables Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude for Boys.

For Girls these values were 2.16, 0.70, 1.23, 2.30 and 2.64 for the select variables Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude respectively.

12. Comparison of Mean Scores of the Select Variables between Post-test and Retention test for the Students of Government and Aided Schools.

The means for post-test and Retention test were compared for significant difference and the critical ratios obtained for the select variables
Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude were 3.78, 2.38, 3.11, 3.68 and 3.50 respectively for the students of Government schools.

The critical ratios obtained for Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude were 2.58, 0.77, 2.58, 2.77 and 3.11 respectively for the students of Aided school. Only the value of Moral Awareness showed significance.

13. Comparison of Mean Scores of the Select Variables between the Post-test and Retention test for the Students of Urban and Rural Schools.

The critical ratios obtained for Moral Values, Moral Awareness, Moral Thinking, Moral Action and Moral Attitude were 1.35, 1.14, 2.06, 1.84 and 1.06 respectively. These findings show that all the select variables except Moral Thinking retained by the students of Urban schools.

The correlated means between post-test and retention test were compared for significance for the students for Rural Schools, the critical ratios obtained were 4.34 for Moral Values, 2.12 for Moral Awareness, 3.65 for Moral Thinking, 4.32 for Moral Action and 4.55 for Moral Attitude. All the values exceeded the level of significance.
INTERPRETATION AND CONCLUSION OF RESULTS

A summary of examination of the results as interpretation and conclusion is shown below.

From the findings of the study it revealed that Moral Values and its selected variables are fully developed and showed high significant results in the case of Total Sample Boys and Girls, students of Male and Female teachers, Thrissur and Manjeri regions, Government and Aided schools, Rural schools and Co-educational schools.

It is observed from the findings that only four categories of the samples that is students of University Campus school region, Urban schools, Boys-only and Girls-only schools did not show significant result in only one variable 'Moral Thinking'. Likewise students of Boys-only schools did not show significant result in the variable 'Moral Attitude'. In the case of Individual teacher samples, eight teachers did not show significant result in Moral Values, 14 teachers in Moral Awareness, 24 teachers in Moral Thinking, 20 teachers in Moral Action and 19 teachers in Moral Attitude.

From the findings it is understood that from all the categories of samples the individual teacher samples only did not give significant results especially in the variable 'Moral Thinking'.
The findings of the comparison of Mean Scores of the select variables for finding out its retention effect reveals that;

Moral Values are retained by the students of Male teachers and urban schools out of the selected nine samples.

Moral Awareness is retained by Girls, the students of Male teachers, Aided schools and Urban schools.

Moral thinking is retained by Girls alone.

Moral Action is retained by students of Male teachers and Urban schools.

Moral Attitude is retained by the students of Urban schools only.

From these findings it could be understood that the effect of training given for developing Moral Values through the developed lessons in the case of Moral Awareness is the maximum and then the Moral Action and Moral Values and at last Moral Attitude and Moral Thinking. From the results it is also seen that the selected variables could not be retained by Total sample, Boys, students of Female teachers, Government schools and Rural schools.

Conclusion

The findings of the study lead to the following conclusions.
1. Special lessons prepared based on JIM to transact Biology curriculum are capable of developing the select Moral Values with their components in secondary school pupils.

2. The effect of training given for developing Moral Values and the components through the special lessons which is presented in the module was lasting to a partial extent.

EDUCATIONAL IMPLICATIONS OF THE STUDY

The results of this experimental study provides a number of implications in the educational field. The outcome of this study, the module, is useful to teachers, students, curriculum makers and also policy makers in value education.

Indian destiny is shaped in our classrooms. In this context the whole activities of the child in the school are important. Considering textbooks the preface highlights the instructional objectives of cognitive, affective and conative domains. It ensures that the book is helpful for the existence and welfare of the human beings. Is this aspect of the book fulfilled by its transaction? Regarding the role of the teachers, Is their duty limited only to impart the factual knowledge of child? No. The teachers are playing a prominent role to the actual transaction of the text book to fulfill the objectives. Timely training is to be given to teachers for this. Value education
is also to be considered important and it is time to practice strategies and methods to make it reach up to the expected level.

The implications of the study are as follows:

1. In view of this study every teacher should take value education of children as regular responsibility since it is the need and necessity of the hour.

2. Every teacher has to find out values inherent in their subjects because the content of all subjects are rich in values.

3. Teachers should find out time and periods to transact the identified values of their subjects in their classrooms.

4. Teachers should be ready to get trained in value education/value inculcation through in-service training/pre service training/self learning materials.

5. Provide ample opportunities to students for practice of values in schools.

6. The present curriculum provides many experiences/learning activities to students for being a discoverer. So, it is necessary to add many value-oriented questions for their exercise in textbooks.
7. The curriculum committee should also provide handbooks to teachers to practice value inculcation methods and strategies.

The agencies can follow the following recommendations.

1. NCERT, IASE, SCERT, DIET's and CTE's should organize training courses to teachers on value education.

2. Since modules are proved as effective for in-service training of teachers it can have due impact on the nature of in-service education in future.

3. Government should take necessary steps to develop modules of this kind in all subjects for the benefit of teachers.

4. This type of modules are helpful for adult education, extension - education centres, training authorities etc.

5. This methodology is helpful to organise live programmes in mass media for value inculcation.

Since value education is the need of the hour and as there is a lack of this type of modules in teacher training of pre-service and in-service programmes, the module developed in this study is hoped to be highly significant in the educational field. This is also extendable to students, Research scholars, Distance learners, Curriculum committee and also to State
and National Resource groups. Thus a nation wide application is expected by the investigator for the developed module.

SUGGESTIONS FOR FURTHER RESEARCH

Since the present study throws light on an area which is neglected even now, that is value education, this study leads to some suggestions for further research.

1. As science is considered for facts only by most people, the provision of values in the subject is to be explored. Hence critical studies and experimental studies are to be conducted in science subjects like Physics, Chemistry and Mathematics.

2. As teachers are the value transmitters they are to be trained in the transmission process. Researches for providing training to teachers based on new effective strategies for value education are to be conducted.

3. Most of the teachers have the opinion that the schools have a busy schedule and hence they cannot attend training programmes for better classroom practices. In such a situation Modules/Packages are to be developed through research for self-training and learning of all teachers.
4. Value education is helpful for better life in the society. So it is an extensive area and includes all types of people, like students, teachers, parents and adults. Studies are to be conducted to give attention to all strata of people for their improvement in life by developing values.