Chapter III

METHODOLOGY

- Design of the Study
- Variables
- Samples
- Tools used for the Study
- Procedure
- Scoring and Consolidation of the Data
- Statistical Techniques used for the Study
- Development of the Training Module
METHODOLOGY

An account of methodology for conducting the present study is given in this chapter. Methodology is the vital part of any research, as it guides the way to proceed.

The methodology has been described under the following heads:

1. DESIGN OF THE STUDY
2. VARIABLES
3. SAMPLES
4. TOOLS
5. PROCEDURE
6. SCORING AND CONSOLIDATION OF THE DATA
7. STATISTICAL TECHNIQUES
8. DEVELOPMENT OF THE TRAINING MODULE

Each of the above has been described below in detail

DESIGN OF THE STUDY

The study was developing a training module for teachers to transact Biology curriculum for developing certain moral values in secondary school pupils. This study had two parts. The first was an experimental one to train teachers to identify values hidden in the content of secondary school Biology
curriculum and then to train them to use JIM in the classrooms to transact these values. The second part of the study was to convert the training procedure into a self-learning module.

Training was given to 30 teachers selected from two districts. They were given training in three groups, each with a handy number, in three regions. The trained teachers had developed eight lesson plans to teach for eight values. They taught these lessons in their own classes.

The experimental part was done as a single group pre-test–treatment–post-test–retention test design, using 1094 secondary school pupils. The Test of Moral Values was used to collect data in the different testings.

The development of *Training Module* was done after confirming the results of the experiment to be positive. The Module was developed by writing down the exact procedure used in the experiment, following the principles of preparing self-instructional material for distance education.

**VARIABLES**

The experimental study had two variables. The dependent variable was the development of Moral Values along with its four components, Moral Awareness, Moral Thinking, Moral Action, and Moral Attitude in secondary school pupils. The independent variable was the training of teachers to transact Biology curriculum which finally was developed as a module.
SAMPLES

The study was intended to be conducted on a sample of 30 Biology teachers of secondary school level. It was decided to select them from two districts which are easily accessible for the investigator. So she selected Thrissur and Malappuram districts. As the training was presumed to be of a difficult procedure she wanted only a handy number of sample at a time and at the same time, only those who are willing to participate in the experiment. Therefore, the sample was grouped into three, based on locale and these were Thrissur, Manjeri and Calicut University Campus regions. This ensured a coverage of both the districts. The schools used in the study are listed in table 3 and shown in figure 1.
### TABLE 3

**List of Samples used in the Study**

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     | G.V.H.S.S. Chelari    | F  | C.U.C | 14 | 20 | 34 | G | R | Co-ed
| 19  | Kadeeka. P.K.  
     | HSA (N.S) 
     | VPKMM H.S.S. Pallikkal        | F  | C.U.C | 16 | 27 | 43 | A | R | Co-ed
| 20  | Jayasreevee. K  
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     | VPKMM H.S.S. Pallikkal        | F  | C.U.C | 20 | 21 | 41 | A | R | Co-ed
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     | G.M.H.S.S. Tenhipalam       | F  | C.U.C | 26 | 26 | 52 | G | R | Co-ed
| 22  | Gouri. K  
     | HSA (N.S) 
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| 23  | Radha. K.G  
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| 24  | Mariyam. M.A.  
     | HSA (N.S) 
     | A.P.H.S.Alagappanagar        | F  | Thrissur | 24 | 14 | 38 | A | R | Co-ed
| 25  | Beena. K.M  
     | HSA (N.S) 
     | A.A.H.S. Kattanellur        | F  | "    | 28 | 9  | 37 | A | U | Co-ed
| 26  | Celine. K.A.  
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Note: F - Female, M - Male, G - Government, A - Aided, U - Urban, R - Rural
Figure 3.1. Map Showing the Distribution of Schools Selected for the Study
As the teachers were the subjects of the transacting sample the availability and their assembling was a problem. With the advice of the Guide at first the investigator approached the DEO of Thrissur and convinced him the scope of the study and the need of the sample for the study. He was very positive in attitude towards the problem and promised all necessary help for the study. He arranged a subject council meeting of Biology teachers of Thrissur district on 4th February 2004 in which 54 teachers participated and from them the investigator selected eight teachers as per their willingness.

The second set of sample was from Manjeri region. The course was conducted with the help of the DEO and sixteen Biology teachers participated.

The third and last set of the sample was from the Calicut University Campus school and seven teachers participated in this course. Both the Manjeri region and the Calicut University Campus region belonged to Malappuram district.

Though the total sample thus came up to 31, one teacher from Thrissur region was not available at the time of the treatment. The total number of teachers thus came to be 30.

The treatment and tests were administered to the students of standard IX who are taught Biology by the selected teachers. The student sample
came upto 1094. The sample of teachers selected, administered their treatment on these student samples.

Subsamples of the Study

The total sample of 30 teachers could be divided into subsamples. Thus the study had the following subsamples.

1. Individual teacher sample

As the total sample was 30, each individual teacher was studied as a subsample under this category.

2. Sex of the teachers

Based on this criterion male and female teachers were studied as subsample under this category. There were 9 male teachers and 21 female teachers.

3. Region of the sample where the training was conducted

The region is identified based on the place where the workshop for the training was conducted. Thus the subsamples based on the criterion was Thrissur region with 7 teachers, Manjeri region with 16 teachers, and Calicut University Campus region with 7 teachers.

The students taught by the sampled 30 teachers became the students' sample. The total 1094 students fell into the following subsamples.
1. **Sex of the students**

   Sex of the students was taken as the criterion for this subsample and boys were 577 and girls were 517 in number.

2. **Management of the school**

   The type of the school was taken as another criterion for subsampling and two types of schools viz., Government and Aided were taken in this category. The number of Government school sample were 664 and that of Aided were 430.

3. **Locale of the school sample**

   In this subsample locale of the school was taken as the criterion and thus Urban and Rural schools were taken. The Urban sample consisted of 325 students and that of Rural consisted of 769 students.

4. **Sex-typing of the school**

   In the sex typing, Boys-only, Girls-only and Co-educational types were taken as the subsamples. The number of Girls-only type consisted of 74 students, Boys-only was 152 and that of Co-educational type was 868 students.

   Thus a total of 1094 students were there.
TOOLS USED FOR THE STUDY

The following tools were used for the study.

1. Test of moral values for secondary school students.
2. Eight lesson plans based on JIM to develop the identified moral values from the Biology curriculum.

Description of the Tools


This was the tool to test the level of moral values in secondary school pupils which were identified from their Biology curriculum. The tool was prepared by the investigator with the help of her supervising teacher for the present study.

Planning and Preparation of the test

It is known that Biology is rich in values. So many moral values are there in Biology curriculum. Many moral values are already there in pupils also. So the investigator prepared a tool to test the level of moral values in secondary school students. So identifying the moral values to be included in the tool was the first task. For this the investigator searched for moral values relevant to the target group. The prominent source books referred to were Wilson (1967), Kay (1975), Rao (1986) and Mehndiratta (1997). Next the investigator analysed the Biology curriculum of secondary school classes to confirm whether these moral values are present in it. Combining both these
the investigator could identify some moral values relevant to secondary school students that could be developed by transacting the Biology curriculum. They are listed below.

1. Sense of responsibility  2. Concerns for others  3. Appreciation of Nature  

There are 24 values thus identified by the investigator. But it may be pointed out that all these values are not mutually exclusive but many of them overlap with each other.

The next task was constructing the tool for measuring the level of these values. A previous tool developed by the supervising teacher was available and it was already used by the investigator for her M.Ed study. To explore some of the values of the target group some relevant items of the tool were retained as such with the permission of the author. To explore the other values more items were prepared by the investigator.

According to Rao (1986) Moral education being an abstract subject, testing is much more difficult here than in other subjects. In spite of the
difficulties attempts can be made to evaluate moral traits. The test of moral understanding are similar to the tests in the cognitive area of any other subject. They may be classified under three categories as:

- Testing an understanding of the meaning of the terms/concepts/principles/codes etc.
- Testing capacity for Moral Thinking
- Testing capacity for Moral action.

He also opined that, in moral development attitudes constitute an important aspect. It is the attitude of a person that ultimately determines one's way of action in moral situations. Kay (1975) opined that a morally mature person must possess the Primary Moral Traits (PMT) and the Primary Moral Attitudes. These traits and attitudes demand the inculcation of several virtues. With these evidences the investigator made discussions with her supervising teacher and thus selected four components to test each moral value and these were Moral Awareness, Moral Thinking, Moral Action and Moral Attitude.

After deciding the values to be included and the four components of each value, the investigator prepared the items. They were in the format of multiple choice items except for Moral Attitude which were in a 3 point scale. First a number of items were written for each value under each section with the options. From them the apt ones were selected for the final tool with the help of the supervising teacher and an expert in the field. Thus the tool
consisted of 50 items as a total in which 12 items were under Moral Awareness, 10 items each under Moral Thinking and Moral Action, and 18 items under Moral Attitude. The prepared tool was in Malayalam.

The details of the four sections are given below.

**Section I Moral Awareness**

The items in this section are intended to check the awareness of the respondents about the meaning of moral terms, virtues and qualities. Four distractors were given for each item.

**Example**

What type of character of a person is shown from his throwing away of wastes here and there?

- (A) Truthfulness
- (B) Indiscipline
- (C) Lack of Cleanliness
- (D) Irresponsibility.

**Section II Moral Thinking**

The items in this section were meant for checking the ability for moral thinking. This also checks the respondent's ability to make moral decisions.

**Example**

An abattoir (slaughter house) running near your house is creating pollution. Which of the following ways being adopted will be proper?
(A) Quarrel with the owner of the slaughter house on the issue.
(B) Prevent people from purchasing meat from there
(c) Presume that this issue is not to be taken seriously.
(D) Make the families living nearby aware of the issue.

Section III Moral Action

Here each item presents a situation where the respondents have to act morally. This requires a sound moral courage and also qualities like concern for others, patience, selflessness and more flexibility.

Example

Suppose your sister failed in the examination. How will you react?

(a) Blame her for her fault
(b) Tease her by telling that she failed due to lack of competitiveness.
(C) Assure her not to worry much and also offer your all out efforts in the future.
(D) Promise that you would remain with her to face the accusation of all other family members.

Section IV Moral Attitude

This section is constructed as a three-point scale. 18 items were given out of which 14 items require positive responses whereas the remaining four items expect negative responses.
Example

I believe that life is precious

(A) Agree   (b) Uncertain   (C) Disagree

(    )   (    )   (    )

Mode of Answering

The tool was prepared with necessary instructions to students. A single response sheet containing four sections to answer the items was prepared. The first three sections have four options of A, B, C and D. The fourth section has three circles for the responses of Agree, Uncertain and Disagree.

A sample copy of the Test, its English version and Response sheet are provided as Appendix I, II and III respectively.

Scoring

For the first three sections the right responses are to be given one mark each whereas for the last section which is an attitude scale, the responses indicating positive attitude are to be given three marks each, the responses showing negative attitude be given one mark each and the undecided category would get two marks each. Thus the maximum a subject could score in this tool was 86.

A copy of the scoring key is given as Appendix IV.
The tool was a criterion referenced test which was prepared on the basis of prefixed criteria for the assessment of selected values. All the items were selected after consultation with experts, thus ensuring face validity. Situations are provided to the students to know Moral Values and its components in the form of a test. Hence the investigator previously determined the objectives and had represented almost all moral qualities/values in the tool. Thus the tool enjoys Content Validity. A vast amount of literature was gone through for selecting the criteria to prepare the items. Hence the test ensures construct validity also.

2. **Lesson Plans to Develop the Identified Moral Values from the Biology Curriculum**

The lesson plans used in the study were aimed at developing the select Moral Values among secondary school students.

**Planning and Preparation of Lesson plans**

As the first step of preparing the lesson plans the Biology text books of standards VIII, IX, and X were analysed by the investigator to identify the values inherent in them. The next hurdle was how to transact these values in the classroom. From referring to many books and journals the investigator found that there are many strategies for developing values. One among them is 'Models of Teaching'. According to Joyce and Weil (1992), 'Models of Teaching' help students acquire information, ideas, skills, values, ways of
thinking and means of expressing themselves. A model of teaching is a plan or pattern that we can use to design face to face teaching in classrooms or tutorial settings and to shape instructional materials— including books, films, tapes, computer-mediated programs and curricula (long term courses of study).

A thorough reading of models of teaching showed that there are two important models for value development. They are the Role play model and the Jurisprudential Inquiry Model (JIM). Both are coming under the same Social Family of Models of teaching.

Role playing leads students to understand social behaviour, their role in social interactions and ways of solving problems more effectively. The model asks students 'to act out' conflicts, to learn to take the role of others and to observe social behaviour. That is, role-playing requires students to take on and act out the roles of real or imaginary individuals in various situations.

As students mature, the study of social issues at community, state, national and international levels can be made available to them. The Jurisprudential model is designed for this purpose. Created especially for secondary students in social studies, the model brings the case-study method, reminiscent of legal education, to the process of schooling. Students study cases involving social problems in areas where public policy needs to be made. They can be led to identify the public policy issues and the options that
are available for dealing with them and the values underlying those options. Although developed for social studies this model can be used in any area where there are public policy issues and most curricular areas abound with them (ethics in science, business, sports, etc.), (Joyce and Weil, 1992).

According to Singh (2004) Jurisprudential Inquiry Model (JIM) is an effective strategy for value inculcation because of its own advantages. One notable advantage of this method is that open climate for discussion is there which is a major feature of child centred approach in the classroom. Another advantage is that the teacher is very powerful person who initiates the questions or inquiry during the process. Because of its simplicity and application in the Indian classroom settings, Jurisprudential Inquiry Model of Teaching seems to be quite useful.

Studies in 1990 onwards found that the emotions are stored in the form of memories in our brain, known as emotional memory. Memory that we ordinarily designate for awareness is the 'cognitive memory'. Both these are different and both are situated at two different places in the human brain. While cognitive memory resides in Hippocampus, emotional memory is situated in Amygdala (Nader, 2002). According to Nader strong emotions lead to strong memories. The importance given here is that JIM is capable of developing our emotions and thus stimulating our Amygdala. Participation of students about an issue through JIM is capable of inducing empathy
especially in its fifth phase. This empathy will help the students view the situation in a personalised manner. This gives them clarity of vision making them capable of changing towards the positive side of the situation from the old negative viewpoint. This is how JIM helps in the development of a value. Therefore, the investigator selected JIM as a value transaction strategy for her study.

The investigator has previous experience of practicing JIM during her M.Ed course. As a part of the course the investigator had studied the effect of JIM as a strategy to develop moral values in secondary school pupils and found that this method is highly effective in developing moral values in students. Because of the evidences from the above said references and from the own experience of the investigator, she decided to select JIM as one of the models for preparing lesson plans.

After thinking over of its application she decided to reject the inclusion of Role play model, because it has limited scope in implementation, although it is an effective technique. It is more applicable to lower class students. Thus the investigator limited the study to JIM alone as the transaction procedure.

The complete form of JIM including its Orientation to the model, Major concepts, Steps, and Application and Effects are provided in Chapter V, Section II of the Module. For its brief description a summary chart is shown here along with the effects of the model.
SUMMARY CHART: JURISPRUDENTIAL INQUIRY MODEL

Syntax

Phase One: Orientation to the Case
- Introduce materials
- Review facts.

Phase Two: Identifying the Issues
- Synthesize facts into a public policy issue or issues.
- Select one policy issue for discussion
- Identify values and value conflicts
- Recognize underlying factual and definitional questions.

Phase Three: Taking Positions
- Articulate a position
- State the basis of the position in terms of the social value or consequences of the decision

Phase Four: Exploring the Stance(s). Patterns of Argumentation
- Establish the point at which value is violated (factual).
- Prove the desirable or undesirable consequences of a position (factual)
- Clarify the value conflict with analogies
- Set priorities. Assert priority of one value over another and demonstrate lack of gross violation of second value.

Phase Five: Refining and Qualifying the Positions.
- State position and reasons for position and examine a number of similar situations.
- Qualify position.
Phase Six: Testing Factual Assumptions behind Qualified Positions

Identify factual assumptions and determine if they are relevant
Determine the predicted consequences and examine their factual validity (will they actually occur?).

Social System

The model has moderate to high structure, with the teacher initiating and controlling the discussion; however, an atmosphere of openness and intellectual equality prevails.

Principles of Reaction

Maintain a vigorous intellectual climate where all views are respected; avoid direct evaluation of students' opinions.

See that issues are thoroughly explored.

Probe the substance of students' thinking through questioning relevance, consistency, specificity, generality, definitional clarity, and continuity.

Maintain dialectical style: Use confrontational dialogue, questioning students' assumptions and using specific instances (analogies) to contradict more general statements.

Avoid taking a stand.

Support System

Source documents that focus on a problem situation are needed.
FIGURE 3.2 Instructional and Nurturant effects of Jurisprudential Inquiry model

The investigator prepared a sample lesson plan based on JIM for the training procedure. Based on the training during the workshop the teachers prepared necessary lesson plans for classroom practices. The sample lesson plan is provided in the procedure part. The prepared lesson plans are provided in the module.
PROCEDURE

The procedure adopted for the study is as follows:

1. Analysing the Biology text books for standards VIII, IX and X to locate moral values that can be developed from the curriculum.

2. Making the teachers aware of the scope of Biology curriculum to develop certain moral values and the need for certain special transacting procedures to develop those values.

3. Giving training to teachers to analyse the Biology text books to identify the values hidden in them.

4. Training the teachers for using JIM to develop moral values identified in the above step.

5. Conducting a pre-test of moral values for secondary school pupils selected as the sample.

6. Conducting classes by the trained teachers through JIM to develop the select moral values for the sampled students.

7. Conducting a post-test of moral values for the sample.

8. Testing the difference between pre-test and post-test scores for its significance.

9. Conducting a retention test of moral values for the sample.

10. Testing the difference between post-test and retention test scores for its significance.
11. Developing the final module for the self-learning of the training procedure.

Procedure one was the actual preparatory phase of the training given to teachers. So step one of procedure is given under the heading, 'Preparation for the training to teachers'. This was followed by a thorough 'Planning for conducting the training programme' by the investigator. Procedure steps of two, three and four were the actual training programme intended. So these three are combined and described below in detail under the heading 'Workshop for training teachers'.

1. Preparation for the training to teachers

Before the training programme the investigator analysed the content of Biology text books of standard VIII, IX and X to locate values.

Here the investigator did the content analysis to find out values included in it. A number of values are hidden in the Biology content. From teachers' opinion it is understood that they never know the technique of content analysis for finding out values and also no training was there to fill this gap. Hence the investigator gave training to analyse Biology content to learn how to identify the values hidden there. The actual procedure followed for content analysis is described in section 1 of the Module. Biology text books of standard VIII and IX were analysed by the teachers in the workshop and standard X was given as home assignment for teachers.
For demonstration purpose the investigator selected one chapter of standard VIII. The findings of the chapter are summarised below.

### Chapter 3  
**The Earth for our Future**

<table>
<thead>
<tr>
<th>Major Concept</th>
<th>The Earth for our Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor concepts</td>
<td>Values identified</td>
</tr>
<tr>
<td>1. Introduction</td>
<td>Duty and Responsibility</td>
</tr>
<tr>
<td></td>
<td>Self Discipline</td>
</tr>
<tr>
<td></td>
<td>Concern for Others</td>
</tr>
<tr>
<td></td>
<td>Cleanliness</td>
</tr>
<tr>
<td>2. Table</td>
<td>Reliability</td>
</tr>
<tr>
<td>3. Pollution-Laws</td>
<td>Dignity of Labour</td>
</tr>
<tr>
<td></td>
<td>Patience</td>
</tr>
<tr>
<td></td>
<td>Justice</td>
</tr>
<tr>
<td></td>
<td>Servicemindedness</td>
</tr>
<tr>
<td>4. Pollution</td>
<td>Servicemindedness</td>
</tr>
<tr>
<td></td>
<td>Concern for Others</td>
</tr>
<tr>
<td></td>
<td>Social service</td>
</tr>
<tr>
<td></td>
<td>Non-violence</td>
</tr>
<tr>
<td></td>
<td>Considerateness</td>
</tr>
<tr>
<td></td>
<td>Appreciation of Nature</td>
</tr>
<tr>
<td></td>
<td>Duty and Responsibility</td>
</tr>
<tr>
<td></td>
<td>Cleanliness</td>
</tr>
<tr>
<td></td>
<td>Group Responsibility</td>
</tr>
<tr>
<td>5. My duty</td>
<td>Duty and Responsibility</td>
</tr>
<tr>
<td></td>
<td>Concern for Others</td>
</tr>
<tr>
<td></td>
<td>Non-violence</td>
</tr>
<tr>
<td>6. Further Activities</td>
<td>Social Service</td>
</tr>
<tr>
<td></td>
<td>Duty and Responsibility</td>
</tr>
</tbody>
</table>

**Major Value of the Chapter – Sense of Responsibility**
After the content analysis the investigator entered to its transaction strategy. After thorough reading she prepared a lesson plan based on JIM. This is prepared as a sample for giving training to the teachers. It was intended that based on this sample lesson plan, during the workshop the teachers have to prepare sufficient lesson plans on all major values identified.

The JIM requires six phases for completing the model. The phases of the sample lesson plan are shown below.

The lesson plan was based on a specific value "Sense of Responsibility"

**Phase One: Orientation to the case**

As the first step the teacher introduces a material in the form of an issue,

'June 5 – World Environmental Day' – followed by the matter.

**Phase Two: Identifying the issues**

In the phase II students analyse the material and selects one policy issue for discussion such as the nature is being destructed by the activities of human beings.

(Value Vs value conflict)

Protection of nature Vs utilisation of nature.
Phase Three: Taking Positions

Students take positions on the issue. They can be.

1. The earth is for man. All the resources on the earth is created for man. Therefore utilising the same is not wrong.

2. Man is only an unimportant creature on earth. Earth sustains man. Yet man behaves greedily and destructs earth.

Based on their positions about the issue the teacher divides them in two groups.

Phase Four: Exploring the stance(s), Patterns of Argumentation

Argumentation on the issue between the two groups follows and in this phase.

Phase Five: Refining and Qualifying the Positions

Phase four naturally leads to the clarification of their views as the teacher enquires and refinement occurs in this phase.

Phase Six: Testing Factual Assumption Behind Qualified Positions.

Teacher summarises the value points pointed out by the two groups.

The detailed procedure and the lesson plan in its complete form are presented in the Module.
After completing the preliminary resources thus, the investigator then started for the plan of the training programme.

2. **Planning the training programme**

With the help of the supervising teacher the investigator prepared a plan for the actual training programme. The training programme was intended for four days and the activities of each day also were planned accordingly. It was decided to start the programme with an opinionnaire administered on the teachers about their views on value education in schools. If the opinion is on the negative it was decided to re-administer the same after the training programme to see for any change. The training for analysis of content followed by that for transaction of values through JIM were also planned. Thus the training programme planned for the complete analysis of Biology text books of standard VIII and IX (X will be the home assignment); and preparation of eight value based lesson plans through JIM as the outcome of the training were finalised.

The general plan prepared for the training is shown below.
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.00 - 10.30</td>
<td>Self Introduction by Teachers</td>
</tr>
<tr>
<td>10.30 - 11.30</td>
<td>Opinion Gathering</td>
</tr>
<tr>
<td>11.30 - 11.45</td>
<td>Tea break</td>
</tr>
<tr>
<td>11.45 - 1.00</td>
<td>Presentation and Demonstration for content analysis (Std VIII)</td>
</tr>
<tr>
<td>1.00 - 2.00</td>
<td>Lunch break</td>
</tr>
<tr>
<td>2.00 - 4.00</td>
<td>Workshop</td>
</tr>
<tr>
<td><strong>2nd day</strong></td>
<td></td>
</tr>
<tr>
<td>10.00 - 11.30</td>
<td>Discussion of Lessons of the previous day</td>
</tr>
<tr>
<td>11.30 - 11.45</td>
<td>Tea break</td>
</tr>
<tr>
<td>11.45 - 1.00</td>
<td>Workshop (Std. IX)</td>
</tr>
<tr>
<td>1.00 - 2.00</td>
<td>Lunch break</td>
</tr>
<tr>
<td>2.00 - 4.00</td>
<td>Workshop + Discussion for selection of values for classroom practice</td>
</tr>
<tr>
<td><strong>3rd day</strong></td>
<td></td>
</tr>
<tr>
<td>10.00 - 11.30</td>
<td>Selection of values for lesson plan preparation</td>
</tr>
<tr>
<td>11.30 - 11.45</td>
<td>Tea break</td>
</tr>
<tr>
<td>11.45 - 1.00</td>
<td>JIM introduction &amp; illustration</td>
</tr>
<tr>
<td>1.00 - 2.00</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>2.00 - 3.00</td>
<td>Analysed a problem based on JIM</td>
</tr>
<tr>
<td>3.00 - 4.00</td>
<td>Further discussion</td>
</tr>
<tr>
<td><strong>4th day</strong></td>
<td></td>
</tr>
<tr>
<td>10.00 - 11.30</td>
<td>Workshop on JIM</td>
</tr>
<tr>
<td>11.30 - 11.45</td>
<td>Tea break</td>
</tr>
<tr>
<td>11.45 - 1.00</td>
<td>Workshop</td>
</tr>
<tr>
<td>1.00 - 2.00</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>2.00 - 3.00</td>
<td>Workshop</td>
</tr>
<tr>
<td>3.00 - 4.00</td>
<td>Future plans for practice of Lesson in the field</td>
</tr>
</tbody>
</table>
With all these plans the investigator conducted a pilot training before its actual field work. This was done under the supervision of the supervising teacher to six Natural science students of M.Ed course in the own Department. The investigator detailed the procedure of content analysis with demonstration which was followed by the workshop. In this way they were trained to analyse the Biology text book of standard IX and found a list of moral values inherent in it. After content analysis procedure the strategy JIM was introduced and demonstrated. The discussion continued upto a certain level, but not upto the expectation of the investigator because the participants were fully morally matured. Still, the participants became surprised to know the long list of values hidden in the content and the strategy JIM.

3. **Workshop for training teachers**

With the plan prepared the investigator started the training programme.

a. **Workshop at Thrissur**

The workshop at Thrissur was on 4\textsuperscript{th}, 5\textsuperscript{th} and 6\textsuperscript{th} February 2004. It was conducted in Government Model Girls Higher Secondary school, Thrissur which was arranged by the DEO Thrissur. The school was in the compound of the DEO office and the DEO visited the training programme and encouraged the teachers for understanding its importance.
As per the plan self introduction was the first attempt. Then the investigator introduced the scope of the study. As a first step the investigator supplied the opinionnaire to the teachers. There were four questions in it which are given in the module. After answering the questions the investigator collected back the opinionnaire. It was found that all teachers were expressing positive opinion for value education.

Then the investigator detailed the procedure of content analysis and demonstrated with one of the chapters of standard VIII. All the teachers analysed the same with the help of the investigator using the text book individually which was followed by their discussion. In the afternoon session the workshop continued with the analysis of the other five chapters of standard VIII by groupwise analysis and their discussions.

In the second day the selected ten teachers assembled and continued the work of content analysis of standard IX in the morning session as per the plan. Here the investigator encouraged group wise activities in the workshop. Three groups were made for this. Finally, the three groups worked together and they completed all chapters of standard VIII and IX and left the Xth standard for home assignment.
In the third day they selected the values necessary for classroom practice and the selected eight major values from the eight chapters of the textbook for standard IX were

- Life is Worth living.
- Concern for Others
- Hardwork
- Simplicity
- Dignity of Labour
- Good Manners
- Servicemindedness and
- Sense of Responsibility

In the same day the investigator started JIM along with an introduction. As the teachers were in need of special techniques for value education, the investigator directly introduced Models of Teaching and JIM. The orientation of JIM was followed by the demonstration and discussion of a problem and thus familiarising the sample with the phases of JIM. After this the investigator connected the content analysis and the JIM.

As the workshop was during February and the teachers were very busy with the schedule in their schools, the investigator could not get the teachers in the consecutive 4th day. Hence, from the third day of the workshop, fifteen days were allotted to prepare the lesson plans. During this period the investigator visited each teacher and made corrections and maximum
concentration was given to this field work. As per the plan on the sixteenth
day that is on 4\textsuperscript{th} March all the eight subjects of the sample met again and
discussed their lesson plans. In the afternoon session through discussion they
prepared Phase one of each lesson plan in common. They were ready to
prepare the complete lesson plans in the vacation and the finalisation of the
eight lessons was done after consultation with each other.

b) Workshop at Manjeri

The investigator's plan was to conduct the workshop at Manjeri
immediately after the workshop at Thrissur. But due to some problems, the
workshop was delayed and it was conducted during September 2004 from 7\textsuperscript{th}
to 10\textsuperscript{th} of the month. Sixteen teachers attended from this region. Here the
workshop was completed in a single stretch. They analysed the text books of
standard VIII and IX for listing out values and also prepared eight lesson
plans by group work and discussed thoroughly and finalised the same for
common use. Here also the course details were the same as at Thrissur.

c) Workshop at Calicut University Campus School Region

Seven teachers participated in this region and the course was from 20\textsuperscript{th}
to 23\textsuperscript{rd} May 2005. The whole procedure was the same as of those conducted
before.
Thus all the three groups of the teacher sample got training on JIM and prepared necessary lesson plans before starting the treatment.

4. Administration of the pre-test

With the letter from the DEO’s the investigator approached the Heads of the schools for fieldwork. They agreed to co-operate and gave necessary help to conduct the field work. The investigator printed sufficient number of response sheets and tools for answering and conducted pre-test in the student samples of the three regions. The pre-test at Thrissur was during June and July 2004. In Manjeri region it was during September and October 2004 and in Calicut University Campus region it was during June 2005.

5. Treatment

Immediately after the administration of the Pre-test the field work of the sampled teachers started. The investigator contacted each teacher of the sample and conducted demonstration classes in some of the schools where they were in need.

Only after they are fully confident to start their classes they were allowed to take the same. The treatment started from November 2004 in Thrissur and Manjeri regions and came to an end during March 2005. The investigator observed maximum classes of all these teachers. Each sample took eight classes based upon eight values. The investigator recorded what
actually happened in the class. The development of the lessons was the same as per the prepared materials except for some modifications in the details. For the third set of sample, that is, at Calicut University Campus school region, the treatment was during July and August 2005.

6. Administration of the post-test

The post test was conducted by the same tool used for the pre-testing. In Manjeri and Thrissur regions it was during February and March 2005. In Calicut University Campus school region it was during August and September 2005.

7. Retention test

After a gap of one month from the post test the retention test was conducted in the three sets of samples. The same was completed by November 2005.

SCORING AND CONSOLIDATION OF THE DATA

Soon after the collection of the data the investigator valued the data sheets of pre-test, post-test, and retention test separately. The marks were given as per the scoring key of the tool. All the scores were entered in the consolidation sheet in a systematic way so that the subsamples also could be identified easily.
STATISTICAL TECHNIQUES USED FOR THE STUDY

The statistical technique used for analysing the data was the test of significance of the difference between correlated means. Paired t-test was used by using SPSS (Statistical Package for Social Sciences Software) for analysis of the obtained data. The findings and conclusions of the study are presented in the following chapter.

DEVELOPMENT OF THE TRAINING MODULE

The study is to develop a Training Module out of the experiment conducted. It was decided to develop the module if the findings of the study proved to be positive. The Module is intended to be used as a Self-instructional one. Hence the same procedure used for training the teachers have to be given in the Module following the principles of developing self-instructional materials. The following principles were practiced in the preparation of the Module (Nath, 1998).

Principles of Developing Self-instructional Materials Followed in the Module

1. The material has a specific beginning, a body and ending.
2. The whole material has sectioning and subsectioning.
3. Each section has an objective and an introduction.
4. New material is presented through subsections with summary.
5. Presentation of the material is with adequate explanation, activities to provoke thinking and self-check questions for reinforcing.

6. Assignment question and Source Materials for further reading are to be provided.

7. Clarity of language is to be ensured through simple, short, conversational style of sentences addressing the learner personally.

All the above principles were followed for developing the Module. All activities and explanations given in the module were the same as used for training in the workshops.

The developed Module is presented as Chapter V.