CHAPTER III
METHODOLOGY
# CHAPTER III

## METHODOLOGY

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CHAPTER III

METHODOLOGY

3.1 Introduction

This chapter deals with the methodology consisting of the design of the study, the independent and dependent variables, sample selected for the experiment, tools developed for the collection of data, procedure followed in the standardization of tools, statistical techniques employed for the analysis and interpretation of data. Methodology is a highway of vibrant and throbbing processes whereby hazy sets of assumptions get transformed into a clear-cut blueprint where in the phenomenon under investigation is approached systematically through a series of calculated measures and procedures. It is a procedure or technique used by the investigator for conducting an investigation. According to Lincoln and Guba (2000) method or methodology applies in correspondence with the assumption about the social interaction between and among investigator and respondents.

The major objective of the present study was to determine the effectiveness of Value Analysis Model and Value Discussion Model in developing Valuing Competencies of standard eight students. Experimental method was adopted to test the effectiveness by comparing it with the existing method.

Out of seven models, the investigator selected two models of teaching for the present study and they are Value Analysis Model and Value Discussion Model. Details of the models selected are given in chapter I. Valuing Competencies Scale, Instructional material based on Value Analysis Model and Value Discussion Model, Worksheets for the pupils based on Value Analysis Model and Value Discussion Model were prepared by the investigator for the students of standard eight based on certain value conflicting situations from daily life.

3.2 Research Design

The design selected for the present study is Experimental. It is the blue print of the procedure that enables the researcher to test the hypotheses by arriving at valid
conclusions and relationships between independent and dependent variables. It refers to the conceptual framework within which the experiment is conducted. Experimental method is a systematic and logical method of hypotheses testing under carefully controlled conditions. It is the most sophisticated, exact and powerful method for discovering and developing an organized body of knowledge. It is the only type of research that directly attempts to influence a particular variable, and can really test hypotheses about cause and effect relationship. Selection of a particular design is based upon the purposes of the experiment, the type of variable to be manipulated and the conditions or limiting factors under which it is conducted. (Best and Kahn, 1995)

In a true experimental design, the equivalence of the experiment and control groups is provided by random assignment of subjects to the experimental and control treatments. In classroom research, it is difficult to arrange a true experimental design by matching person to person because the matched pairs may belong to different divisions in different schools. Bringing them altogether for the purpose of the experiment is not found practical.

There are statistical techniques like analysis of co-variance (ANCOVA) to overcome this difficulty. The investigator therefore decided to conduct the experiment in intact non-equivalent classroom groups and statistically equate the groups applying the pretest-posttest scores. ANCOVA uses the principle of partial correlation with Analysis of Variance. It is particularly appropriate when the subjects in two or more groups are found to differ on a pretest or other initial variables. Difference in the initial status of the groups can be removed statistically, so that they can be compared as though their initial status has been equated. The use of ANCOVA method is thus justified for the analysis of scores of the present study.

In this study, the investigator adopted Pre-test Post-test Non-equivalent group Design. The present study utilized three groups, the two groups which were exposed to experimental treatments are experimental group I and experimental group II and the group which was exposed to existing method was the control group. The scale on Valuing Competencies was administered to all the students as pre-test. These groups were then randomly assigned to treatment. After the completion of treatment, same test was given to all the three groups as post-test.
The layout of the design is:

\[ P_r \quad \underline{E1} \quad \underline{X1} \quad \underline{P_o} \]
\[ P_r \quad \underline{E2} \quad \underline{X2} \quad \underline{P_o} \]
\[ P_r \quad \underline{C} \quad \underline{X3} \quad \underline{P_o} \]

- \( P_r \) - Pre-test
- \( E1 \) and \( E2 \) - Experimental group I and II
- \( C \) - Control group
- \( X1 \) - Exposure of Experiment group \( E1 \) to Value Analysis Model (Treatment 1)
- \( X2 \) - Exposure of Experiment group \( E2 \) to Value Discussion Model (Treatment 2)
- \( X3 \) - Exposure of Control group \( C \) to Existing method
- \( P_o \) - Post-test

The study was carried out in three phases and it is shown in the table 3.1.

Table 3.1

<table>
<thead>
<tr>
<th>Phases of the Study</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase One</td>
<td>Pre-test was administered to the selected sample to measure the Valuing Competencies before the treatment.</td>
</tr>
<tr>
<td>Phase Two</td>
<td>The experimental treatment, teaching based on Value Analysis Model and Value Discussion Model was given to Experiment group I and Experimental group II. Control group was continued with the existing method of teaching values.</td>
</tr>
<tr>
<td>Phase Three</td>
<td>Post-test was administered to all the Experimental and Control groups to measure the Valuing Competencies after the treatment.</td>
</tr>
</tbody>
</table>
The flowchart showing the research design is given as Figure 3.1

Figure 3.1 Flow Chart Showing the Research Design
3.3 Variables of the Study

Variables are conditions or characteristics that the experimenter manipulates controls or observes. The flowchart showing the variables of the study is depicted in the Figure 3.2

![Diagram showing variables of the study](image)

**Figure 3.2** Flow chart showing the Variables of the study

Dependent variables are the conditions that appear, disappear or change as the experimenter introduces, removes or changes independent variables. In the present study, Valuing Competencies was the dependent variable. Independent variables are the conditions that the experimenter manipulates in his attempt to ascertain their relationship to observed phenomena. (Best and Khan, 1995) In educational research,
an independent variable may be a particular teaching method or an attribute. In the present study, Value Analysis Model and Value Discussion Model were the treatment variables. There are also basal variables which cannot be altered by the investigator. Gender and type of management of school were basal variables selected for the present study.

3.4 Sample Selected for the Study

The sample is a small proportion of a population selected for the purpose of representing the population. A good sample of a population is the one which within restrictions imposed by its size will reproduce the characteristics of the population with the greatest possible accuracy (Sukhia, 1963). When the units in a sample are proportional to their presence in the population, the sample is said to be stratified. When employing the method of stratified random sampling, a researcher divides his population into different strata by some characteristic, and from each of the smaller homogeneous groups falling in each strata, he draws randomly a predetermined number of units. The widely accepted and popular procedure for stratification recommended for use by Indian social researcher for studying with school children was adopted for this purpose. According to this procedure, the most satisfactory representative sample of secondary school students could be obtained if the representation is given for the following basal variables - Gender of the subjects, Rural/Urban residence, Instructional efficiency of the educational institutions and Type of Management

Based on the design of the experiment and the objectives of the study, the investigator selected two basal variables for the present study namely:

1. Gender of the subjects, and
2. Type of Management of School

Sampling is the process of selecting a sample from the population. The investigator identified and collected the list of all secondary schools of Pathanamthitta district. Stratified random sampling technique was used in the selection of sample from the secondary schools in Pathanamthitta district of Kerala state.

For the present Study, three types of schools were taken. It includes one Government, one Aided and one Private school. The final samples of subject were
selected from three schools based on type of management of school in Pathanamthitta district. The list of the schools taken up for the present study is given in Table 3.2

Table 3.2

_Distribution of Sample Population in terms of Name of School, Type of Management of School, Gender and Number of Students Selected_

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the School</th>
<th>Type of Management of School</th>
<th>Number of students</th>
<th>Gender</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>1</td>
<td>Government VHSS, Elanthoor</td>
<td>Government</td>
<td>75</td>
<td>75</td>
<td>150</td>
</tr>
<tr>
<td>2</td>
<td>S.V.G HSS, Aranmula</td>
<td>Aided</td>
<td>77</td>
<td>77</td>
<td>154</td>
</tr>
<tr>
<td>3</td>
<td>Marthoma Senior Secondary School Kozhencherry</td>
<td>Private</td>
<td>78</td>
<td>80</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The investigator selected standard eight to conduct the present study, because the pupils of this group belongs to the 13+ age group which comes under post-conventional level of Kohlberg’s classification. At this stage the child follow the rules and regulations of society and take decisions about things being right or wrong with a view to avoid censoring by the social system. The individual begins to think in rational terms by valuing the rights of human beings and welfare of society. Individual’s moral judgement is now based upon his conscience and the belief in universal principles.

For the present study, the investigator selected three schools. In each school three divisions were taken. Two divisions were taken as experimental group I and II and one division as control group. The initial sample consisted of 494 students. By removing absentees in pre-test and post-test and in the stage of statistical analysis due to various reasons, the total number of students included in the study was 462. Out of which 154 students come under experimental group I; 154 students come under experimental group II and 154 students come under control group. The flowchart showing the number of students in experimental and control groups based on gender and type of management of school is depicted in Figure 3.3
Figure 3.1: Flow Chart showing the Number of students in Experimental Groups and Control Group based on Gender and Type of Management of School.
The study was subjected to statistical analysis with a final sample of 462 students of standard eight from three schools of Pathanamthitta district. In order to find out the effectiveness of Value Analysis Model, 308 students from experimental group I and control group were considered as total sample; to find out the effectiveness of Value Discussion Model, 308 students from experimental group II and control group were considered as total sample and to compare the effectiveness of Value Analysis Model and Value Discussion Model and Value Discussion Model, 308 students from experimental group I and experimental group II were considered as total sample.

3.5 Instructional Materials, Students’ Worksheet and Tool used in the Study

3.5.1 Preparation and Validation of the Comprehensive Instructional Materials based on Value Analysis Model and Value Discussion Model

The following instructional materials were used in the present study:

1. Instructional Material based on Value Analysis Model (Prepared and Validated by the Investigator)

2. Instructional Material based on Value Discussion Model (Prepared and Validated by the Investigator)

The preparation and validation of Instructional Materials based on Value Analysis Model and Value Discussion Model comprises of six steps namely

1. Planning of the Instructional Material based on Value Analysis Model and Value Discussion Model

2. Preparation of the initial draft of the Instructional Material

3. Validation of Instructional Material

4. Tryout of the Instructional Material in small group

5. Preparation of the final Instructional Material

6. Experimental tryout of the Instructional Material in Experimental group
Step I: Planning of the Instructional Material based on Value Analysis Model and Value Discussion Model

The first step in the preparation of the Instructional Material is planning. Fixing the Instructional Objectives is the important criteria in planning. In order to prepare the instructional material, the investigator has selected various value conflicting life situations as the content. The situations were selected from different areas. Consulting with the experts, instructional materials were prepared by investigator following the systematic steps as envisaged by Joyce & Weil (1980), Coombs & Frankel (1971) and Passi, Sansanwal & Singh (1988)

Step II: Preparation of the initial draft of the Instructional Material

Next step is the preparation of initial draft of the instructional material. On the basis of the conflicting situations the investigator has prepared instructional materials on Value Analysis Model and Value Discussion Model. The format of instructional material is given below:

Preliminary Information

Specific Objectives

Preparation of the Instructional Materials

Preliminary Information

The investigator gave some preliminary information in the instructional material such as teacher’s name, subject, content area and method of teaching, etc.

Teacher’s Name: 

Subject:

Content Area: 

Method of teaching:

Specific Objectives

A specific objective is an immediate goal attainable as a result of instruction. It is the description of the pupil’s terminal behaviour expected out of the ongoing classroom instruction. Specific objectives are definite, tangible, precise and functional. They are predetermined and are always formulated in such a way that their attainment becomes quite practicable through the usual classroom teaching within the stipulated period of
fixed duration. The instructional objectives of Value Analysis Model and Value Discussion Model stated by the investigator are:

**Specific Objectives stated in Value Analysis Model;**

1. Student orients himself into value conflicting situations.

2. Student identifies the conflicting values in the value dilemma.

3. Student identifies the facts, terms and important ideas in the value dilemma.

4. Student thinks divergently in suggesting alternative courses of action.

5. Student acquires the ability to analyze the consequences of a value conflicting situation.

6. Student develops the ability to suggest the best alternative.

7. Student acquires the ability to propose suitable reasons for the selection of the best alternative.

8. Student develops the ability to implement Valuing Competencies in his daily life situations.

**Specific Objectives stated in Value Discussion Model;**

1. Student orients himself into value conflicting situations.

2. Student identifies the conflicting values in the value dilemma.

3. Student identifies the facts, terms and important ideas in the value dilemma.

4. Student develops the ability to discuss in a group to solve value conflicting situations

5. Student thinks divergently in suggesting different courses of action in groups.

6. Student finds out the possible consequence of different alternative.

7. Student develops the ability to synthesize the various consequences suggested in the groups.

8. Student develops the ability to suggest the best alternative.

9. Student acquires the ability to propose suitable reasons for the selection of the best alternative.
10. Student develops the ability of implementing Valuing Competencies in his daily life.

**Preparation of the Instructional Materials**

The investigator needs to find out the effectiveness of Value Analysis Model and Value Discussion Model in developing Valuing Competencies among standard eight students of Pathanamthitta district. The investigator developed the instructional materials based on Value Analysis Model and Value Discussion Model by following the syntax of both the models of teaching values. More details regarding the syntax of Value Analysis Model and Value Discussion Model is given in Chapter I.

(a) **Syntax of Value Analysis Model**

**Phase One – Presenting the Dilemma**

In the first phase, the teacher presents the value dilemma i.e., value conflicting situations to the students. Based on the value dilemma, students clarify the circumstances involved in the dilemma, identify and define difficult terms, identify the characteristics of the central character.

**Phase Two – Identification and Clarification of Value Conflict**

In this phase, the teacher clarifies the value questions and the students identify the values which conflict in the dilemma presented.

**Phase Three – Asking for Conceivable Alternatives**

In this phase, the students identify the main alternatives open to the central character.

**Phase Four – Asking for Possible Consequences of Each Alternative**

In this phase, the students predict the consequences of each alternative.

**Phase Five – Asking for Evidences to Support the Likelihood of Consequences Occurring**

After listing the consequences of each alternative the teacher asks the students to begin the search for evidence to estimate the degree of desirability of each consequence occurring.
Phase Six – Asking for Evaluation of Likely Consequences

Here the teacher presents the criteria to analyze the consequences in terms of desirability/undesirability. Each of the consequences is evaluated in a five-point rating scale. The alternative, which attained the highest total, will be considered as the best alternative.

Phase Seven – Asking for a Judgement as to which Alternative seems the best and why

In this phase, the students state the reasons for selection of the particular alternative as the most desirable in this situation.

(b) Syntax of Value Discussion Model

Phase One – Presenting the Dilemma/issue

In phase one, a dilemma is given to the students in the form of various value conflicting situations. Based on the value dilemma, students clarify the circumstances involved in the dilemma, identify and define difficult terms, identify the characteristics of the central character.

Phase Two – Dividing on Action

In phase two, students are divided based on the choice of actions as results of the dilemma.

Phase Three – Organizing Small Group Discussion

In phase three, the group discussions of the students are organized properly with necessary guidance, suggestions and advices from teacher.

Phase Four – Conducting a Class Discussion

In phase four, all the groups are brought back in to the classroom with their newly formed ideas. The students go on with their free and non-judgemental discussions.

Phase Five – Closing the Discussion

In phase five, the teacher brings in a nut-shell of the free discussion of the students and concludes the discussion.

The investigator prepared the initial draft of instructional material by keeping in mind the format of instructional material, specific objectives and syntax of models of
teaching and submitted to the supervisor for suggestions. Based on the corrections and suggestions given by the supervisor, investigator prepared the second draft.

**Step III: Validation of the Instructional Material**

The instructional material had to be validated by experts in order to be implemented at the school level. For that the investigator submitted it to the experts in the field of teacher education and value education. The investigator requested the experts to look critically into the instructional material keeping in mind the following aspects.

- Accuracy and logic of the content
- Accuracy of the steps
- Simplicity of the language used
- Realization of the objectives in the instructional material
- Modification whether needed

The experts examined the instructional material as per the instruction furnished and gave the following suggestions.

- Use simple language
- Make it simple
- Make the value dilemmas more specific
- Grouping should be done very carefully in the case of Value Discussion Model
- Give Worksheets to all students for Value Discussion Model.

**Step IV: Try out of the Instructional Material in small group**

As per the recommendations and feedbacks given by the experts, suitable changes were made in the second draft. Then, it was tried out in small groups. Two lesson plans were given for initial try-out by the investigator to a class of standard eight (school which is not considered for experimentation). Then again the instructional material were modified and restructured based on the actual experience the investigator obtained.
Step V: Preparation of the final Instructional Material

After implementing the instructional material, certain changes were also made in the light of first-hand experience in using the lesson plans and the response given by the students. Before going into the experimental try-out, the investigator again consulted supervisor and experts for further validation and prepared the final instructional material. Thus instructional material consisted of 15 lesson plans on Value Analysis Model and 15 lesson plans on Value Discussion Model were prepared based on the sample material.

Step VI: Experimental tryout of the Instructional Material in Experimental group

After the final validation of the tool, the instructional material was used in experimental groups. Instructional Material consists of 15 lesson plans based on Value Analysis Model was given in Appendix A. Instructional Material consists of 15 lesson plans based on Value Discussion Model was given in Appendix C. Lesson plan based on existing method was given in Appendix E.

3.5.2 Preparation of Students’ Worksheet based on Value Analysis Model and Value Discussion Model

Worksheet is considered as a data record used by the students during teaching learning process. In the Value Analysis Model the students have to move from phase one to phase seven. In the Value Discussion Model the students have to move from phase one to phase five. The recording under different phases would help the students to proceed to higher phases of Value Processing.

The main items given in the students’ Worksheet for Value Analysis Model were given below:

(i) Main Points, Difficult Terms and Factual Questions in the dilemma: Here the students are asked to write the main points, difficult terms and factual questions in the presented dilemma.

(ii) Conflicting Values in the situation: Here the students write about the conflicting values in the value dilemma given.

(iii) Major Alternatives for the central character: Here the students write the major alternative in front of the central character.
(iv) **Major consequences of each Alternative:** Here the students write the major consequences of each alternative in front of the central character.

(v) **Desirability of Possible Consequences:** Based on the selected value criteria, the students score all the consequences of both the alternatives.

(vi) **Selection of the Best Alternative:** Depends upon the scoring, the students select the best alternative.

(vii) **Reasons for the selection of Best Alternative:** Here the students list the reasons for the selection of alternative.

The main items given in the students’ worksheet for Value Discussion Model were given below:

(i) **Main Points, Difficult Terms and Factual Questions in the dilemma:** Here the students are asked to write the main points, difficult terms and factual questions in the presented dilemma.

(ii) **Action of choice:** Here the students write their choice of action for the presented dilemma.

Students are divided into groups based on their action of choice

**During Group Discussion I**

(iii) **Conflicting Values in the dilemma:** Here the students write about the conflicting values in the value dilemma given.

(iv) **Selected Alternative:** Here the students write the alternative they selected.

(v) **Possible consequences of selected Alternative:** Here the students write the major consequences of the selected alternative in groups.

**During Class Discussion**

(vi) **Other Alternatives and their Consequences:** In the class discussion, students write the other alternatives and their possible consequences from different groups.

**During Group Discussion II**

(vii) **Final selection of the best alternative:** After the class discussion, the students select and write the best alternative from different choices by considering
and comparing the possible consequences of their group with other groups.

**Closing the Discussion**

**(viii) Reasons for the selection of best alternative:** Here the students list the reasons for the selection of best alternative.

The investigator submitted the Worksheet along with the syntax of Value Analysis Model and Value Discussion Model to the experts in the field of teacher education and Value education at the time of the validation of instructional material. Based on the suggestions and corrections given by the experts and supervisor, final Worksheet was prepared for Value Analysis Model and Value Discussion Model. Copy of the Worksheets was given in Appendix B and D.

### 3.5.3 Development and Standardisation of Valuing Competencies Scale

For the purpose of the present experimental study, the investigator developed and standardized Valuing Competencies Scale for standard eight students. The investigator selected the Likert method to construct Valuing Competencies Scale. The statements were worded in accordance with the suggestions given by Likert and Edward (1957).

The development and standardization of Valuing Competencies Scale comprised of thirteen steps namely

1. **Step 1:** Selection of the Components of the Valuing Competencies Scale
2. **Step 2:** Selection of the Content for Valuing Competencies Scale
3. **Step 3:** Preparation of the Blue Print
4. **Step 4:** Writing of Items
5. **Step 5:** Evaluation of the Initial Draft
6. **Step 6:** Preparation and Evaluation of the Second Draft
7. **Step 7:** Preparation of the Third Draft
8. **Step 8:** Preparation of Scoring Key and Interpretation of the Tool
9. **Step 9:** Preparation of Answer Sheet
10. **Step 10:** Preliminary Try-out
Step 11: Item Analysis

Step 12: Preparation of Final Tool

Step 13: Establishing Validity and Reliability

**Step 1: Selection of the Components of the Valuing Competencies Scale**

The investigator selected three main components of Valuing Process. The three components are Choosing, Prizing and Acting. The Choosing component consists of three processes such as Choosing Freely, Choosing from Alternatives and Choosing after consideration of Consequences. The Prizing component consists of two processes namely Prizing and Cherishing and Publicly Affirming when appropriate. The Acting component consists of two processes such as Acting when situation demands and Acting with a Pattern Consistency and Repetition. These seven value clarifying abilities altogether named Valuing Competencies.

**Step 2: Selection of the Content for Valuing Competencies Scale**

For value education there is no prescribed content as it includes topics from all walks of life. So, the investigator had selected certain contexts for this purpose. Certain conflicting situations which the individual is facing in the daily life were selected for instruction based on Value Analysis Model and Value Discussion Model. The contexts were mainly selected from four areas includes situation from Family, School, Peer group and Community. The sub-contexts of the main areas includes (i) qualities related to character - truthfulness, punctuality, obedience (ii) scholastic activities - examination, interest in attending the class, assignments (iii) interaction with others – parents, teachers and friends (iv) co-scholastic activities – recreational activities, economic activities, physical activities (v) concern for others – helping mentality, brotherhood and help from others.

**Step 3: Preparation of the Blue Print**

The investigator prepared the blue print of Valuing Competencies Scale based on components of Valuing Competencies namely Choosing, Prizing and Acting. The weightage given to three components namely Choosing, Prizing and Acting is given in the table 3.3.
Table 3.3

Weightage Given to Components of Valuing Process

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Components of Valuing Process</th>
<th>No. of Questions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choosing</td>
<td>24</td>
<td>43</td>
</tr>
<tr>
<td>2</td>
<td>Prizing</td>
<td>16</td>
<td>28.5</td>
</tr>
<tr>
<td>3</td>
<td>Acting</td>
<td>16</td>
<td>28.5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>56</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of items taken under the Choosing component of Valuing Process was 24, which was divided into three sub skills of 8 each. The number of items taken under the Prizing component of Valuing Process was 16, which was divided into two sub skills of 8 each. The number of items taken under the Acting component of Valuing Process was 16, which was divided into two sub skills of 8 each. The weightage given to the contents of Valuing Competencies Scale is given in Table 3.4.

Table 3.4

Weightage given to different Areas of Valuing Competencies Scale

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Areas</th>
<th>No. of Questions</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Family</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>School</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Peer group</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>Community</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>56</td>
<td>100</td>
</tr>
</tbody>
</table>

The total number of items taken under the different areas namely Family, School, Peer group and Community was 56. In each area there were 14 questions. The blue print of Valuing Competencies Scale based on the components and area of content is given in Table 3.5.
### Table 3.5

**Blue Print of Valuing Competencies Scale**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Valuing Competencies</th>
<th>Areas of Content</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Family</td>
<td>School</td>
</tr>
<tr>
<td>1</td>
<td>Choosing Freely</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Choosing from Alternatives</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Choosing after consideration of Consequences</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

#### Choosing Component

1. Choosing Freely
2. Choosing from Alternatives
3. Choosing after consideration of Consequences

#### Prizing Component

4. Prizing and Cherishing
5. Publicly Affirming when appropriate

#### Acting Component

6. Acting when situation demands
7. Acting with a Pattern Consistency and Repetition
**Step 4: Writing of Items**

The blueprint gives a very clear idea about the number of items to be written from each sub-variable. With this precise directive suggested by the blueprint the investigator initially prepared 120 items. The investigator prepared the items by giving due weightage to each of the sub-variables and their components according to blueprint. The investigator prepared statements from selected area of contents – Family, School, Peer group and Community with sub-areas. The tool was designed in five point scale and each statement was followed by five responses – Strongly Agree, Agree, Uncertain, Disagree and Strongly Disagree.

**Step 5: Evaluation of the Initial Draft**

The initial draft of the scale with 120 items was submitted to the supervisor for evaluation. The supervisor suggested the following modifications.

- Increase clarity in statements and modify accordingly
- Reduce the number of items
- Remove unnecessary items
- Avoid repetition

**Step 6: Preparation and Evaluation of the Second Draft**

Based on the suggestion given by the supervisor the investigator made suitable changes and number of items was reduced to 100. The second draft was submitted to supervisor for evaluation. The suggestions given by supervisor are

- Make the statements more specific
- Avoid statements converge almost same idea
- Reconstructive of items
- Check grammatical errors

The investigator requested 4 experts to evaluate the tool ‘Valuing Competencies Scale’ along with the blueprint. They were experts in the field of Education and Research. The suggestions were as follows:
➢ Restructure the language used in framing statements

➢ Some statements need more clarity

➢ Reduce the number of items

➢ Make each statements more specific

➢ More negative items should be included

➢ Make number of positive and negative statements almost equal

Step 7: Preparation of the Third Draft

The investigator prepared a third draft of 70 items after made the corrections given by supervisor and experts.

Step 8: Preparation of Scoring Key and Interpretation of the Tool

The investigator prepared a Scoring Key for the tool titled “Valuing Competencies Scale”. For scoring Positive statements, numerical values such as 5, 4, 3, 2 and 1 were given and for Negative statements, the reverse was the order i.e. 1, 2, 3, 4 and 5. The scores of each individual were computed by summing up the weightage of the individual responses.

<table>
<thead>
<tr>
<th>Scoring for Positive Statements</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scoring for Negative Statements</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
Interpretation:

The investigator calculated the mean (M) and standard deviation (S.D) of the scores for interpreting it. The interpretation was done on the basis of the following criteria.

- Above M+1 \( \sigma \) - High Level Competencies
- Between M+1 \( \sigma \) and M-1 \( \sigma \) - Moderate Level Competencies
- Below M-1 \( \sigma \) - Low Level Competencies

**Step 9: Preparation of Answer Sheet**

The investigator prepared an answer sheet with the instructions and personal data sheet to collect the personal details of students regarding their gender, type of management etc. The students were requested to put a tick (\( \checkmark \)) mark against each statement. They were asked to select the appropriate one from responses namely strongly agree, agree, uncertain, disagree, strongly disagree.

**Step 10: Preliminary Try out**

The investigator administered the tool with 70 items to 370 standard eight students for the purpose of item selection for the final tool and to find out the difficulties if any to check the adequacy of instructions provided and to determine the time required for responding to the scale.

**Step 11: Item Analysis**

Item analysis was done to select suitable items for the final Valuing Competencies Scale. Item analysis according to Ferguson (1952) is one of the many processes by which one can find which item differentiates and which items do not differentiate between constructing criterion groups. The investigator had done the analysis and selection of the items through the following steps.

(a) Arrangement of the scored answer sheet in the descending order

The investigator collected the answer sheets after the preliminary try-out and scored the sheets. All the scored answer sheets were arranged in descending order.
(b) Determination of the best 27% and the poorest 27% of the script

The response sheets of highest 27% and lowest 27% were used as extreme groups for item analysis. The scores obtained for each item in these extreme groups were used for calculating the discriminating power of each item. The investigator selected 100 students who secured high marks were taken as the upper group and similarly 100 students who secured lower marks were taken as the lower group.

(c) Determination of the scores of each item marked by each of the criterion group

The investigator selected the upper group and lower group as criterion groups. The scores obtained for each items by the sample in the two criterion groups were taken.

(d) Determination of mean and standard deviation of each item in the 2 criterion group

The investigator after determining the scores of each item, the mean and standard deviation were calculated.

(e) Determination of ‘t’ value

After determining the mean and standard deviation, the discrimination power of each item was obtained by calculating the critical ratio ‘t’. The value of ‘t’ is a measure of the extent to which a given statement differentiate between the high group and the low group.

(f) Selection of items for final scale

The investigator calculated the ‘t’ value for each item and only the items with ‘t’-value greater than 1.96 were taken as valid.

**Step 12: Preparation of the final tool**

After calculating the ‘t’ value, the investigator selected the items with ‘t’ value greater than 1.96 for the final tool. Thus there were 56 items in the final tool titled “Valuing Competencies Scale”. There were 28 positive statements and 28 negative statements in the final tool. The maximum and minimum scores which the students can score on Valuing Competencies Scale are 280 and 56. The final tool and its response sheet were given in Appendices F and G.
Step 13: Establishing Validity and reliability

In order to establish validity and reliability of Valuing Competencies Scale, investigator conducted a pilot study on a random sample of 50 standard eight students using final tool.

Reliability

Reliability is defined as the degree of consistency with which the test measures what it does measures. The reliability of the Valuing Competencies Scale was found out by following the method of test-retest. The reliability coefficient of the scale obtained by the application of Karl Pearson’s Product moment coefficient of correlation was found to be 0.74 which indicates that the tool is reliable one for administration.

Validity

Validity of a scale refers to the scale quality to measure what it is intended to measure. This means a scale is valid, when it can measure the Valuing Competencies for which it is designed. The Valuing Competencies scale is said to possess Intrinsic Validity and Item Validity.

Intrinsic Validity discussed by Gullisten (1950) provides qualitative evidence that the test is measuring what is ought to measure. The intrinsic validity is stated in terms of proportion of true variance. It is the square root of its reliability of the test. Guilford had defined this in terms of the equation

\[ r_{\alpha} = \text{square root of} \ r_{tt} \]

where \( r_{\alpha} = \) intrinsic validity

\[ r_{tt} = \text{correlation co-efficient between 2 tests} \]

This statistics is called index of reliability. The validity using index of reliability was found to be 0.86

Item Validity emphasizes the extent to which an item predicts segregation of scale into high versus low criterion scores. As mentioned earlier, item analysis was done and ‘t’ values are calculated for all items to establish item validity.
3.6 Data Collection

The investigator for the purpose of experiment met the headmaster to acquire permission to conduct the experiment after finalizing the sample and tools. The investigator met the class teacher and the teacher who handling value education classes and had discussions with them and their co-operation was ensured. The experiment was conducted to find out the effectiveness of the Value Analysis Model and the Value Discussion Model in developing Valuing Competencies of standard eight students of Pathanamthitta district.

3.6.1 Procedure adopted in Experimentation

The procedure adopted in conducting the experiment includes three level pre-test level, treatment level and post-test level.

Pre-test level

In the first level, Valuing Competencies Scale was administered as pre-test to the entire sample. The response of all the students were collected and scored in accordance with the predesigned evaluation schemes. The scores obtained were used for further analysis.

Treatment level

During treatment level, the investigator conducted classes to all the experimental and control groups. The investigator treated the experiment group I using Value Analysis Model; experiment group II using Value Discussion Model and control group using existing method. The topic selected for treatment was same for experimental and control groups. Equal time and efforts were given to experimental and control group. Three schools were taken for experimentation. The experiment was conducted for a period of six months in each school.

Post-test level

After the completion of experiment, post-test was administered to all the experimental group I, experimental group II and control group. The same test was used as pre-test and post-test. The response of all the three groups were collected and scored for statistical analysis.
3.6.2 Scoring and Consolidation

The scoring of the tools was done manually by the investigator with the aid of scoring keys. The data of the 462 samples were consolidated with the help of the computer software (Excel Sheet), keeping in view the important classification to be obtained. The scores were entered into a master tabulation sheet in a personal computer. From the master tabulation sheet, they were grouped into categories and subjected to statistical analysis as per the need.

3.7 Statistical Techniques Used in the Study

The major objective of the present study was to find out the effectiveness of Value Analysis Model and Value Discussion Model over the existing method separately and to compare the effectiveness of two models viz. Value Analysis Model and Value Discussion Model. Suitable descriptive and inferential statistical techniques were used in the analysis and interpretation of the data to draw out a more meaningful picture of results from the collected data. Mean and Standard Deviation were calculated to study the nature of pre-test and post-test scores. Through the technique of Independent Samples ‘t’ – test, the difference in the experimental and control groups in developing Valuing Competencies were tested for significance.

The statistical technique ANOVA and ANCOVA were further used for finding the effectiveness of Value Analysis Model and Value Discussion Model over existing method. The Valuing Competencies of the students in experimental groups were compared with that of the control group using ANCOVA with pre-test as covariate. The important findings were reported and based on the findings; the tenability of the hypotheses was tested. The major statistical techniques used in the study were:

1. Mean
2. Standard Deviation
3. Independent Samples ‘t’-test
4. ANOVA
5. ANCOVA