Chapter 3

RESEARCH METHODOLOGY
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3.1 Introduction

This chapter gives in detail the methods adopted for the present study. It provides the operational definitions of the terms used, variables of the study, hypotheses, research design of the study, sample of study, tools used in the study and description of the intervention programme. Finally, the internal and external validity of the experimental study, research ethics, and the methods used for data analysis are described.

3.2 Method of Study

The present study was an experimental study with Pre-test, Post-test, Delayed Post-test Single Group Design. The Study was conducted in three phases.

- Phase 1: Preparation and Validation of Holistic Education Intervention Programme Modules, and Pre-test
- Phase 2: Holistic Education Programme as an Intervention
- Phase 3: Post-test and Delayed Post-test

3.3 Operational Definitions

In the present study, the variables Holistic Education Programme, Value Preference, Social Competence, and Leadership Skills have been operationally defined as follows:

3.3.1 Holistic Education Programme

Holistic Education Programme in the present research refers to an instructional programme carried out using various classroom training modules and structured outside activities by the researcher.
3.3.2 **Value Preference**

Values are principles or qualities that an individual considers of intrinsic worth, and they are desirable goals or guiding principles in an individual’s life. (Rokeach, 1973; Schwartz, 1992; Kluckhohn, 1951). In the present study, value preference refers to the preference of engineering students on the ten values suggested by Sherry and Verma (2012). The values are religious value, social value, democratic value, aesthetic value, economic value, knowledge value, hedonistic value, power value, family prestige value, and health value.

3.3.3 **Social Competence**

In this study, social competence is defined as the effectiveness of one’s coping with, and performance in, everyday real life social situations. The main components of social competence under this study are school competence, team organising competence, peer socialisation competence, social cognition competence, social forethought and compassion competence, social competence related to home, social-emotional competence, and social flexibility competence (Devassy & Raj, 2012).

3.3.4 **Leadership Skills**

In this study, leadership skills refer to the skills exhibited by the students as measured by Leadership Skill Inventory (LSI) developed by Karnes and Chauvin (2000) which was adapted and standardised for the Indian population by Devassy and Raj (2012). The components of leadership skills are fundamentals of leadership, written communication skills, oral communication skills, character building skills, decision-making skills, group dynamics skills, problem-solving skills, personal skills, and planning skills.

3.3.5 **Branch of Study**

In the present study, Branch 1 consists of Computer Science Engineering (CSE), and Information Technology (IT) students. Branch 2 students are in Electronics and Communication Engineering (ECE), and Electrical and Electronic Engineering (EEE). Students of Branch 3 belong to Mechanical Engineering (MEC), and Civil Engineering (Civil).
3.3.6 Religion

Students who belong to Hindu and Christian faiths are considered separately, and all other faiths come under the category ‘Others’ in this study.

3.3.7 Kind of Stay

Students who are away from home and are staying in a hostel or a paying guest accommodation are termed as ‘Hostel’ students, and others who come from their homes are categorised under ‘Home’ category.

3.3.8 Region

In the present study, region means students who hail from North India (North) or South India (South).

3.4 Variables of the Study

3.4.1 Dependent Variables

1. Value Preference
2. Social Competence
3. Leadership Skills

3.4.2 Independent Variable

Holistic Education Programme

3.4.3 Biographical Variables

1. Branch of Study
2. Gender (Male or Female)
3. Religion (Hinduism, Christianity, or Others)
4. Kind of Stay (Home or Hostel)
5. Region (South or North)
3.5 **Research Questions**

This study embarked with the following research questions:

1. Is Holistic Education programme effective in changing the value preference, and enhancing the social competence and leadership skills of engineering students?
2. Is there any difference in the impact of Holistic Education Programme based on students’ branch of study, gender, religion, kind of stay, and region they hail from with respect to value preference, social competence, and leadership skills?

3.6 **Objectives of the Study**

The various objectives of this study are:

1. To develop a curriculum on Holistic Education Programme for Engineering students
2. To implement the curriculum of Holistic Education Programme for Engineering students
3. To assess the impact of Holistic Education Programme on students’ value preference
4. To assess the impact of Holistic Education Programme on students’ social competence
5. To assess the impact of Holistic Education Programme on students’ leadership skills
6. To assess whether the branch of study has any influence on the impact of Holistic Education Programme
7. To assess whether the gender has any influence on the impact of Holistic Education Programme
8. To assess whether the religion has any influence on the impact of Holistic Education Programme
9. To assess whether the kind of stay has any influence on the impact of Holistic Education Programme
To assess whether the region one comes from has any influence on the impact of Holistic Education Programme

3.7 Hypotheses of the Study

The researcher framed the hypotheses for this study based on the objectives. Hypotheses have been categorised under three sets based on the pre-intervention, post-intervention and delayed post-intervention period.

3.7.1 Pre-intervention Period

1. There is no significant difference in the value preference, social competence and leadership skills of Engineering students based on their branch of study.
2. There is no significant difference in the value preference, social competence and leadership skills of students based on their gender.
3. There is no significant difference in the value preference, social competence and leadership skills of students based on their religion.
4. There is no significant difference in the value preference, social competence and leadership skills of students based on their kind of stay.
5. There is no significant difference in the value preference, social competence and leadership skills of students based on the region they hail from.

3.7.2 Post-intervention Period

1. There is no significant impact of the Holistic Education intervention on the value preference of students in the pre-test, post-test and delayed post-test phases.
2. There is no significant difference in the value preference of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their branch of study.
3. There is no significant difference in the value preference of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their gender.
4. There is no significant difference in the value preference of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their religion.

5. There is no significant difference in the value preference of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their kind of stay.

6. There is no significant difference in the value preference of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their region they hail from.

7. There is no significant impact of the Holistic Education intervention on the social competence of students in the pre-test, post-test and delayed post-test phases.

8. There is no significant difference in the social competence of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their branch of study.

9. There is no significant difference in the social competence of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their gender.

10. There is no significant difference in the social competence of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their religion.

11. There is no significant difference in the social competence of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their kind of stay.

12. There is no significant difference in the social competence of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their region they hail from.

13. There is no significant impact of the Holistic Education intervention on the leadership skills of students in the pre-test, post-test and delayed post-test phases.

14. There is no significant difference in the leadership skills of students in the pre-test, post-test and delayed post-test phases of the Holistic Education intervention with respect to their branch of study.
15. There is no significant difference in the leadership skills of students in the pre-
test, post-test and delayed post-test phases of the Holistic Education
intervention with respect to their gender.

16. There is no significant difference in the leadership skills of students in the pre-
test, post-test and delayed post-test phases of the Holistic Education
intervention with respect to their religion.

17. There is no significant difference in the leadership skills of students in the pre-
test, post-test and delayed post-test phases of the Holistic Education
intervention with respect to their kind of stay.

18. There is no significant difference in the leadership skills of students in the pre-
test, post-test and delayed post-test phases of the Holistic Education
intervention with respect to their region they hail from.

3.7.3 Delayed post-intervention period

1. There is no significant relationship between post-test and delayed post-test
scores of value preference of students.

2. There is no significant relationship between post-test and delayed post-
test scores of social competence of students.

3. There is no significant relationship between post-test and delayed post-test
scores of leadership skills of students.

3.8 Population of the Study

The population of the present study consists of first year engineering students of a
University in the district of Bengaluru, Karnataka, India.

3.9 Sample of the Study

To construct and validate the Holistic Education Programme 139 students
were selected from the first-year undergraduate engineering programme of a
university in Bengaluru using random sampling. The sample included male and
female students representing various branches of the engineering programme. In the
second phase, 55 students from the first-year engineering programme of a university
in Bengaluru were selected for the intervention study using stratified random
sampling technique. The students included 31 males and 24 females from all
specialisations and representing various religions and other demographic features. Informed consent was taken from the students, the dean and the coordinator of the Programme. The power analysis done on the sample confirms that the sample size (55) chosen is adequate to arrive at true conclusions. In the power analysis observed value for social competence was 0.80 and leadership skills were 0.806 as mentioned in tables 3.1 and 3.2 respectively. Therefore, a sample size of 55 was considered adequate as the size for the final study.

Table 3.1
Power analysis for sample adequacy: Social Competence

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power^b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>4232.129^a</td>
<td>23</td>
<td>184.006</td>
<td>1.439</td>
<td>.171</td>
<td>.800</td>
</tr>
<tr>
<td>Intercept</td>
<td>672561.119</td>
<td>1</td>
<td>672561.119</td>
<td>5258.072</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Social Competence post</td>
<td>4232.129</td>
<td>23</td>
<td>184.006</td>
<td>1.439</td>
<td>.171</td>
<td>.771</td>
</tr>
<tr>
<td>Error</td>
<td>3965.217</td>
<td>31</td>
<td>127.910</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>913418.000</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>8197.345</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .516 (Adjusted R Squared = .157)
b. Computed using alpha = .05

Table 3.2
Power analysis for sample adequacy: Leadership Skills

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Observed Power^b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>63653.603^a</td>
<td>40</td>
<td>1591.340</td>
<td>2.087</td>
<td>.069</td>
<td>.806</td>
</tr>
<tr>
<td>Intercept</td>
<td>2056519.969</td>
<td>1</td>
<td>2056519.969</td>
<td>2697.117</td>
<td>.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>
3.10 Design of the Study

The researcher used a single group Pre-test – Post-test – Delayed Post-test experimental design to find the impact of Holistic Education on engineering students.

![Flowchart of methodology of research](image-url)
3.11 Procedure of the Study

- Step 1. Developed a course curriculum for holistic education. After the relevant literature review and the experts’ opinion, the curriculum was developed and standardised.
- Step 2. Selected a sample class from the first-year engineering students using stratified random sampling method.
- Step 3. Administered pre-test on the selected sample. The value preference, social competence, and leadership skills of the students were measured using various standardised tools.
- Step 4. Implemented Holistic Education programme developed by the researcher to the sample group of students (Treatment period).
- Step 5. Conducted a post-test using the same tools among the students who participated in the Holistic Education programme.
- Step 6. Conducted a delayed post-test using the same tools after a month from the intervention period.
- Step 7. Did a data analysis to find out the impact of Holistic Education programme on value preference, social competence, and leadership skills of students by comparing the pre-test, post-test and delayed post-test scores.

3.12 Research Tools Used in the Study

The following are the tools used to assess the value preference, social competence, and leadership skills of the engineering students:

3.12.1 Value Preference

The value preferences of students were measured by the Personal Values Questionnaire (PVQ) constructed and standardised by Sherry and Verma (2012). The scale consists of 40 items measuring religious, social, democratic, aesthetic, economic, knowledge, hedonistic, power, family prestige and health values. Two indices of the reliability of the PVQ were found out. Firstly, its reliability was determined by Hoyt’s method using analysis of variance. Secondly, two test-retest reliabilities were determined one after an interval of 11 months and the other of 3 months. In an analysis of variance method, reliability coefficients were between 0.47
and 0.70. The reliability coefficients obtained after a time gap of 3 months were between 0.53 and 0.85. In addition to a few criterion-oriented pieces of evidence of the validity of the ten-value scale, the validity of PVQ was obtained by finding out the hierarchy of values in a sample of 20 students in two ways. Firstly, they were administered PVQ, and the hierarchy of their ten values was determined. Then they were asked to rank the ten values. The two hierarchies were correlated, and the rank order coefficient of correlation of 0.64 was found. This correlation is significant at 0.05 level (df=8). It may be considered that PVQ is a fairly valid tool for determining the hierarchy of values in a group.

3.12.2 Social Competence Scale

The social competence of students was measured by Adolescent Social Competence Scale (ASCS) developed and standardised by Devassy and Raj (2012). This scale has 37 items, and it measures various dimensions of social competence. The reliability was derived at by Cronbach alpha. The total split half reliability score is 0.87. The measure of the intrinsic validity of the scale is the square root of Guttman Split –half reliability, and it was 0.93. The reliability scores of the subscales are school social competence 0.85, team organising competence 0.84, peer social competence 0.83, social cognition competence 0.65, home related competence 0.62, socio-emotional competence 0.64, social forethought and compassion 0.78, and social flexibility competence 0.65.

3.12.3 Leadership Skills

The leadership skills of the students were measured by the Leadership Skill Inventory (LSI) developed by Karnes and Chauvin (2000) which was adapted and standardised for the Indian population by Devassy and Raj (2012). This scale has 125 items. The reliability by Cronbach alpha was 0.98, and the intrinsic validity was 0.96 based on the square root of Guttman split-half reliability. The reliability scores of the subscales are fundamentals of leadership 0.85, written communication skills 0.83, speech communication skills 0.85, character building skills 0.93, decision-making skills 0.82, group dynamics skills 0.89, problem-solving skills 0.78, personal skills 0.92, and planning skills 0.87.
3.12.4 **Informed Consent Form (Appendix A)**

The informed consent form was signed by all the students who participated in both the pilot and the experimental study. The informed consent form guarantees the voluntary willingness to participate in this study and upholds the ethical dimension of the research. Participants were given the freedom to withdraw from the research process at any point in time. The privacy and confidentiality of the data collected were promised in the beginning the study.

3.12.5 **Demographic Proforma (Appendix B)**

The socio-demographic information of the participants was filled up by them on the proforma developed by the researcher. The details regarding name, age, native place, branch of study, gender, religion, kind of stay, the number of siblings, parental status, the school last studied, etc. are collected.

3.13 **Procedure for Formulation and Validation of the Facilitative Tool Holistic Education Programme**

3.13.1 **Facilitative Tool**

The facilitative tool of ‘Holistic Education Programme’ (Teaching Intervention) used in the present study was designed by the researcher. This instructional material consisted of 20 sessions of two hours each in the classroom (40 Hrs), one-day outing to an amusement park, and two days and one night stay in a village.

3.13.2 **Preparation of Facilitative Tool – Holistic Education Programme**

The Holistic Education intervention used in the present study has four units with various sessions. A detailed lesson plan for each unit was prepared with both general and specific objectives, background information, expected learning outcomes, key concepts to be discussed, instructional content, the format of the lesson, the classroom presentation, and the unit test. Each session was planned to be more interactive and activity oriented so that students’ enthusiastic participation was better ensured. Powerpoint lessons for each of the Units were created with interesting video
clips and relevant pictures. The modules on holistic education were subjected to content validity. The content modules on Holistic Education Programme were given to seven experts for evaluation and validation. The experts included principals, professors, deans and content experts. Experts attended some of the sessions and gave feedback on the teaching pedagogy. They validated the modules and lesson plans for the relevance of content, logical flow, the impact of the visuals, grammar and language, application level, class and home exercises, and overall presentation. All the suggestions and corrections given by the experts were incorporated, and the final modules were fine tuned.

3.13.3 Outline of Holistic Education Intervention Programme

Table 3.3
Outline of the intervention programme

<table>
<thead>
<tr>
<th>Unit 1: Social Competence</th>
<th>Unit 2: Leadership Skills</th>
<th>Unit 3: Value Preference</th>
<th>Unit 4: Field Trip and Excursion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson 1: Social Competence – Introduction</td>
<td>Lesson 1: Leadership</td>
<td>Lesson 1: Concept of Values and their Development</td>
<td>Lesson 1: Planning an Excursion</td>
</tr>
<tr>
<td>Lesson 2: Adaptability and Adjustability</td>
<td>Lesson 2: Followership</td>
<td>Lesson 2: Ethics and Ethical Behaviour</td>
<td>Lesson 2: Rural India</td>
</tr>
<tr>
<td>Lesson 3: Relationships</td>
<td>Lesson 3: Goal Setting</td>
<td>Lesson 3: Development and Clarification of Values</td>
<td></td>
</tr>
<tr>
<td>Lesson 4: Emotional Competence and Self-Regulation</td>
<td>Lesson 4: Communication Skills</td>
<td>Lesson 4: Evaluation of Values and Things that Impact the Values of Youth</td>
<td></td>
</tr>
<tr>
<td>Lesson 5: Art of Forgiving</td>
<td>Lesson 5: Critical/Creative Thinking and Decision-making</td>
<td>Lesson 5: Images of God and Prayer Life</td>
<td></td>
</tr>
<tr>
<td>Lesson 6: Self-esteem</td>
<td>Lesson 6: Humility and Self-assertion</td>
<td>Lesson 6: Spirituality</td>
<td></td>
</tr>
</tbody>
</table>
Each unit contains case studies, worksheets, questionnaires, quizzes, role-plays, group discussions, debates, experience sharing, poster and collage making and finally a unit test. There was a comprehensive written exam after all the sessions on Holistic Education Programme to measure the knowledge level of the students.

3.13.4 Pilot Study on the Impact of Holistic Education Programme

The objectives of the pilot intervention were 1) to get the hands-on experience on administering the Holistic Education Programme 2) to assess the impact of Holistic Education Programme 3) to achieve the skills necessary for administering the intervention.

The modules were piloted on 139 students who were selected from the first-year undergraduate engineering program of a university in Bengaluru using random sampling. The sample included male and female students representing various branches of the engineering programme. Informed consent was taken from the students and the coordinator of the programme. The research design was single group pre-test post-test design. The tools of value preference, social competence, and leadership skills were administered before the intervention, and the same were repeated after the intervention as well.

The researcher conducted all the sessions of Holistic Education Programme over a period of three months. The intervention program was further refined and modified based on the feedback from the participants and the experts. The results of the pilot study indicated that there was a significant impact of Holistic Education Programme on value preference, social competence, and leadership skills of engineering students.

The feedback from seven experts and 25 students was analysed to establish validity and reliability as presented in Tables 3.4, 3.5, 3.6, 3.7 respectively.
Table 3.4
*Reliability statistics for experts’ score*

<table>
<thead>
<tr>
<th>Test statistic</th>
<th>N</th>
<th>Value</th>
<th>N items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s alpha</td>
<td>7</td>
<td>0.602</td>
<td>10</td>
</tr>
<tr>
<td>Split half</td>
<td>7</td>
<td>0.778</td>
<td>10</td>
</tr>
</tbody>
</table>

Internal consistency (Cronbach’s alpha) of the items used for the expert’s evaluation is found to be 0.602 which can be considered as above average level of reliability. Similarly, the score of split-half reliability is 0.778 indicating the consistency of the items.

Table 3.5
*Non-parametric test statistics results for experts’ rating*

<table>
<thead>
<tr>
<th>Test statistic</th>
<th>N</th>
<th>Value</th>
<th>N items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friedman ANOVA ($\chi^2$)</td>
<td>7</td>
<td>9.846</td>
<td>10</td>
</tr>
<tr>
<td>Kendall W</td>
<td>7</td>
<td>0.139</td>
<td>10</td>
</tr>
<tr>
<td>Sig</td>
<td></td>
<td>0.276</td>
<td>10</td>
</tr>
</tbody>
</table>

Concordance of the experts in the rating is insignificant indicating the lack of conformity among the ratters ($\chi^2 = 9.846, W =0.139, p = 0.276$). But average rating given to the intervention programme by the experts is 4.63(SD=0.214) out of 5 which indicates that the experts rated the intervention programme as excellent.

Table 3.6
*Reliability statistics for students’ scores*

<table>
<thead>
<tr>
<th>Test statistic</th>
<th>No. of students</th>
<th>Value</th>
<th>N items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s alpha</td>
<td>25</td>
<td>0.706</td>
<td>15</td>
</tr>
<tr>
<td>Split half</td>
<td>25</td>
<td>0.671</td>
<td>15</td>
</tr>
</tbody>
</table>
Internal consistency (Cronbach’s alpha) of the items used for the student’s evaluation is found to be 0.706 which can be considered as a good reliability. Similarly, the score of split-half reliability is also found to be above average indicating the consistency of the items 0.671.

Table 3.7
Non-parametric test statistics results for students’ rating

<table>
<thead>
<tr>
<th>Test statistic</th>
<th>NO. students</th>
<th>Value</th>
<th>N items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friedman ANOVA ($\chi^2$)</td>
<td>25</td>
<td>17.91</td>
<td>15</td>
</tr>
<tr>
<td>Kendall W</td>
<td>25</td>
<td>0.051</td>
<td>15</td>
</tr>
<tr>
<td>Sig</td>
<td></td>
<td>0.083</td>
<td>15</td>
</tr>
</tbody>
</table>

Concordance of the students in the rating is insignificant indicating the lack of conformity among the raters ($\chi^2 = 17.91$, $W = 0.051$, $p = 0.083$). However, average rating given to the intervention programme by the students is 4.83 out of 5 which indicated that the students rated the intervention programme as excellent.

Thus, reliability and validity of the content modules on Holistic Education were established.

3.14 Participants of Intervention

Fifty-five students from the first-year engineering class of a university in Bengaluru were selected for the present intervention study using stratified random sampling method. The students included 31 boys and 24 girls from all specialisations and representing various religions and other demographic features. Informed consent was taken from the students, the dean and the coordinator of the programme.

3.15 Research Design of Intervention

The research design of the present study was single group pre-test, post-test, delayed post-test experimental design. The measures of value preference, social competence, and leadership skills were administered before commencing the intervention. The intervention continued over a period of three months. Immediately
after the intervention, the measures of value preference, social competence, and leadership skills were re-administered. A delayed post-test was carried out after a month of the intervention programme. The data of pre-test, post-test and delayed post-test were analysed using repeated measures of ANOVA and Friedman’s two-way ANOVA and other statistical tools.

3.16 Procedure of Intervention

The researcher explained the purpose of this study in detail to the participants and the university authorities. Informed consent was taken from the students with the approval of the University authorities. The measures of value preference, social competence, and leadership skills were given to the participants on the first day of interaction itself. The next day onwards six sessions of two hours each on social competence were administered to the students. After that, a unit test was conducted. Then six sessions of two hours each on leadership skills were conducted to the students. Another unit test was done again. Six sessions of two hours each on various values were discussed on the following days. A unit test for that was done again. A one-day excursion was planned after that. The researcher gave the objectives of that tour, and the students made all the arrangements and went to an amusement park in Bengaluru. Then the researcher conducted a session on rural India and the students organised two days and a night stay in a village in Bengaluru. In the concluding session of the intervention, feedback was taken from the participants about the programme and the measures of value preference, social competence, and leadership skills were administered. After one month of the intervention, the participants gathered again, and the measures were re-administered for a delayed post-test.

3.17 Description of Holistic Education Intervention Programme

Unit 1: Social Competence

Lesson 1: Social Competence

General Objectives:

By the end of this lesson, the students will

- Comprehend the term ‘Social Competence’ and ‘Social Adaptability.'
- Become aware of how to improve social competence
- Understand the concept of ‘Emotional Quotient.’
- Appreciate the relationship between Emotional Quotient and Social Competence
- Trace the steps to socially just cultural competence

**Teaching Points:**

- Social Competence
- Improving Social Competence
- Emotional Quotient
- Relationship between Social Competence and Emotional Quotient
- Socially Just Cultural Competence

**Instructional Strategy:**

Table 3.8

<table>
<thead>
<tr>
<th>Social Competence</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Content</th>
<th>Method</th>
<th>Pupil Activity</th>
<th>Instructional Material</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>How many of you feel comfortable in a new environment where you see unfamiliar people? Why? What is it that holds us back? There are some people who make themselves comfortable in any environment. Such people are known as socially competent individuals.</td>
<td>Students respond.</td>
<td></td>
<td>Analyse reasons for discomfort in unfamiliar surroundings</td>
</tr>
</tbody>
</table>

Statement of Aim

Today let us understand the concept of ‘Social Competence’.

Presentation
<table>
<thead>
<tr>
<th>Definition of Social Competence</th>
<th>The facilitator defines ‘Social Competence’.</th>
<th>Students listen.</th>
<th>PPT.</th>
<th>Defines social competence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors of Social Competence</td>
<td>Why do we need to be socially competent?</td>
<td>No man is an island, and we live in a society inhabited by different kinds of people.</td>
<td>PPT.</td>
<td>Appreciates the importance of social competence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Becomes aware of the factors of Social Competence</td>
</tr>
<tr>
<td>Tips to improve social competence</td>
<td>The facilitator initiates a discussion on the need for social competence. A discussion of the factors initiated. The facilitator shares some tips on improving social competence.</td>
<td>Examples generated and discussed</td>
<td>PPT.</td>
<td>Identify the steps to improve social competence and comprehend social adaptability</td>
</tr>
<tr>
<td>Social Adaptability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Quotient (EQ)</td>
<td>The meaning of social adaptability discussed. One of the newest concepts is that of Emotional Quotient.</td>
<td>Students observe and listen.</td>
<td>PPT.</td>
<td>Understand the concept of ‘Emotional Quotient.’</td>
</tr>
<tr>
<td>Relationship between EQ and Social Competence</td>
<td>The higher the emotional quotient, the greater the social competence. The facilitator shares the definition of ‘Emotional Quotient’</td>
<td>Students listen and discuss.</td>
<td>PPT.</td>
<td>Appreciate the relationship between EQ and Social Competence</td>
</tr>
<tr>
<td>Socially Just Cultural Competence</td>
<td>Quotient’ and illustrates the concept with relevant examples. The relationship between EQ and Social Competence is explained with the help of a diagram.</td>
<td>Students observe and listen</td>
<td>PPT.</td>
<td>Become aware of the steps to socially just cultural competence.</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Assignment</td>
<td>Prepare a practical plan on how you can serve your community to demonstrate ‘Social Adjustability’. Read the book ‘How to Win Friends and Influence People’ by Dale Carnegie and ‘Who Moved My Cheese?’ by Spencer Johnson and do a book review.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appendix (H) gives another sample Lesson of Unit 1.

**Unit 2 Leadership Skills Lesson**

**1: Concept of Leadership**

**General Objectives:**

By the end of this lesson, the students will

- Understand the concept of leadership
- Identify the characteristics of effective leaders
- List out the functions of leaders
- Analyse various leadership styles and approaches

**Teaching Points:**

- Who is a leader?
- What is the definition of ‘Leadership’?
- Characteristics of Leaders
- Difference between Leaders and Managers
- Functions of a Leader
- Importance of a Leader
- Approaches to Leadership
- Styles of Leadership

**Instructional Strategy:**

Table 3.9

<table>
<thead>
<tr>
<th>Content</th>
<th>Method</th>
<th>Pupil Activity</th>
<th>Instructional Material</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>The teacher shows pictures of famous leaders down the ages and elicits responses Who are they? Why do we remember them? The class is divided into 4-5 groups and asked to do the following: Identify any one leader they admire; List his/her traits/characteristics; Why they admire the individual?</td>
<td>Students respond</td>
<td>Pictures of various leaders</td>
<td>Identify the leaders and recall their contributions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Group Activity</td>
<td>Chart paper and Sketch Pens</td>
<td>List out the characteristics of the leader and define the term ‘leader.’</td>
</tr>
<tr>
<td>Statement of Aim</td>
<td>Let us learn more about the concept of “Leadership”.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Presentation**

<table>
<thead>
<tr>
<th>Definition of Leadership</th>
<th>The teacher then shows the slides with the definition of a leader.</th>
<th>The groups make their presentations.</th>
<th>Presentations Understand the concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differences between a leader and a manager</td>
<td>What is the difference between a leader and a manager? The teacher explains the differences with the help of the slides.</td>
<td>Various responses Students observe and listen.</td>
<td>PPT. Reinforce the traits and definition of a leader.</td>
</tr>
<tr>
<td>Functions of a Leader</td>
<td>There are three main functions of Leaders: Setting and Achieving Organizational Goals; Planning Operations for the Organization; Symbolic Figure of the Group</td>
<td>Students listen as the teacher elaborates on the functions of a leader.</td>
<td>PPT. Compare and contrast the qualities of a leader and a manager</td>
</tr>
<tr>
<td>Traditional Approaches to Leadership</td>
<td>There are three main approaches to leadership: Traits Approach, Behavioural Approach and Contingency Approach. (Each of these is explained in detail.)</td>
<td>Students listen and discuss the various approaches.</td>
<td>PPT. Recognises and Appreciates the functions of a leader</td>
</tr>
<tr>
<td>Leadership</td>
<td>The teacher writes the following names on the board – Hitler,</td>
<td>Hitler was autocratic,</td>
<td>Identifies Leadership</td>
</tr>
</tbody>
</table>

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Appendix (I) gives another sample Lesson of Unit 2.

Unit 3: Personal Values

Lesson 1: Concept of Values and their Development

General Objectives:

By the end of this lesson, the students will

- Understand the concept of values
- Define ‘values.’
- Become aware of the various stages of development of values
- Identify the areas of focus in the various stages of development of values
- Appreciate the importance of values

Teaching Points:

- Concept of Values
- Definition of Values
- Stages of Development in Value Formation
- Areas of Focus
**Instructional Strategy:**

Table 3.10  
*Concept of Values and their Development*

<table>
<thead>
<tr>
<th>Content</th>
<th>Method</th>
<th>Pupil Activity</th>
<th>Instructional Material</th>
<th>Learning Outcomes</th>
</tr>
</thead>
</table>
| **Motivation**                 | The facilitator reads a few headlines that talk of scams, terrorist attacks, murders, rapes, etc.  
|                                | “The world is going from bad to worse.”  
|                                | Do you agree? Give reasons for your response.  
|                                | Is something wrong with our values?                                   | Pupils listen            | Newspaper          | Analyse reasons for the existing issues. |
| **Statement of Aim**           | What are values? Let us understand this concept.                       |                          |                       |                   |
| **Presentation**               |                                                                        |                          |                       |                   |
| **Definition of Values**       | Look at this slide.  
|                                | What do you see?  
|                                | What would you do?  
|                                | ‘Carry on walking?  
|                                | Acknowledge her?  
|                                | Or just give her some money?  
|                                | Our reactions are fashioned by our core beliefs and values. So what are values?  
|                                | The facilitator shares a definition of ‘Values’ on the slide.          | A woman begging on the street  
|                                |                                                                        | Various responses         |                       | Identify picture on slide  
|                                |                                                                        |                          |                       | Analyse responses          |
| **Elements of Self**           | Our values form the self which in turn fashion our                     | Students define values.  
|                                |                                                                        | Students                 | PPT.                 | Define values            |
|                                |                                                                        |                          |                       | Understand the concept of values |

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<table>
<thead>
<tr>
<th>Development of Values</th>
<th>perceptions, beliefs, feelings and behaviour. (Examples shared)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1 – Age 1 to 7 years – Imprint by Observation</td>
<td></td>
</tr>
<tr>
<td>How do children develop values? Yes, they see and do. This is known as ‘Imprint by Observation’. Can you share some examples? In the next stage, children are very much influenced by their heroes/heroines and imitate them. This stage is called ‘Modelling by Heroes’. In the last stage, their peers influence youngsters. Give me some examples when your peers have influenced you. Thus, values form an integral part of our lives and shape our behaviour and attitude.</td>
<td></td>
</tr>
<tr>
<td>observe and understand Students listen and comprehend. They imitate their adults. Students share examples of Imprint by Observation Students observe and listen Students discuss this stage. Students observe and listen. They share examples. Students listen</td>
<td></td>
</tr>
<tr>
<td>Importance of Values</td>
<td>elements that shape the self</td>
</tr>
<tr>
<td>Trace the development of values in stages</td>
<td></td>
</tr>
<tr>
<td>Understand the stages of development</td>
<td></td>
</tr>
<tr>
<td>Realise how values are developed</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PPT.</th>
<th>PPT.</th>
<th>PPT</th>
<th>PPT.</th>
<th>PPT.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Review

<table>
<thead>
<tr>
<th>Review</th>
<th>The Worksheet ‘What Would You Do? is distributed.</th>
<th>Students do the worksheet and record their responses. They shade the responses. The groups discuss the responses and draw their conclusions.</th>
<th>Reinforce concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Group Interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assignment

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Distribute ‘Hidden Values Puzzle’ and ask students to complete the exercise at home.</th>
</tr>
</thead>
</table>

Appendix (J) gives another sample Lesson of Unit 3.

**Unit 4: Field Trip and Excursion**

**Lesson 1: Planning an excursion**

**General Objectives:**

By the end of this lesson, the students will

- Develop self-confidence
- Improve peer relationship
- Display leadership skills
- Demonstrate responsible social behaviour

**Teaching Points:**

- Peer Relationship
- Trust and Faith
- Co-operation and Adjustability
- Responsibility and Leadership
**Instructional Strategy:**

Table 3.11  
*Planning an excursion*

<table>
<thead>
<tr>
<th>Content</th>
<th>Method</th>
<th>Pupil Activity</th>
<th>Instructional Material</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation</strong></td>
<td>The facilitator briefs students about the trip to Wonder La by telling them about the place and the purpose of the outing. He also outlines roles and responsibilities.</td>
<td>Listen</td>
<td>Handout on the trip</td>
<td>Understand the purpose of the outing. Become aware of their roles and responsibilities.</td>
</tr>
<tr>
<td><strong>Statement of Aim</strong></td>
<td>Let us set out on this trip with a short prayer that we not only enjoy ourselves but also learn some valuable lessons for life.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Students embark on the trip punctually with all the necessary preparations. During the entire trip, different student leaders shoulder various responsibilities, demonstrate situational leadership, camaraderie, adjustability and cooperation. Behaviour on the bus, at the venue and during various activities is observed with gentle reminders on appropriate social behaviour and safety norms.</td>
<td>Students undertake the trip with due responsibility.</td>
<td>Trip to Wonder La, an amusement park</td>
<td>Inculcate values of discipline, adjustability and cooperation. Demonstrate leadership in different situations. Learn to value time spent together with their peers.</td>
</tr>
<tr>
<td><strong>Review</strong></td>
<td>Questionnaires are distributed.</td>
<td>Responses</td>
<td>Questionnaire</td>
<td>Review of trip</td>
</tr>
<tr>
<td><strong>Assignment</strong></td>
<td>Write out a pictorial report on your trip with a special emphasis on your experiences, and the values imbibed during the trip.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix (K) gives another sample lesson for Unit 4.

Appendix (L) gives sample Unit test.

3.18 Internal and External Validity of Experimental Study

3.18.1 Control of Threats to Internal Validity

The main factors that cause threats to the internal validity of an experimental study are history, maturation, testing, instrumentation, selection, experimental mortality and subject characteristics.

History: It is an unanticipated and unintended incident that happens during a study. This event may influence the responses of the sample. It may result in a threat to the pre-test and post-test design. These incidents are termed as history threats. The researcher didn’t come across any such untoward incident during the Holistic Education Intervention Programme. Therefore, history is not a threat to the validity of the experimental design in the present study.

Maturation: This threat is associated with the passing of time. The duration of the intervention can affect the results. In other words, maturation is the effect of time on the sample. The duration of Holistic Education Programme Intervention was within the first semester of the study period and less than three months. Thus, the researcher controlled the maturation threat.

Testing: In a study where pre-tests and post-tests are part of the research design, there is a possibility of an increase in post-test score because of the familiarity of the pre-test tool. In the present study, post-test was conducted without disclosing the pre-test scores, and after a duration of three months, it was difficult for the students to recollect the questions used in the pre-test. Thus, the testing threat has controlled to some extent.

Instrumentation: This threat consists of unstable instrumentation, instrument decay, data collector characteristics and data collector bias.

Unstable Instrumentation: This is a threat caused by the use of unreliable instruments for the study. In the present study, only standardised tools were used for
pre-test, post-test and delayed post-test. The Holistic Education Intervention Programme was also validated by experts.

**Instrument Decay**: This threat occurs in case the scoring procedure is changed in some way or other. Also, if the instrument permits different interpretations of results or is very long or not easy to score. In the present study, a uniform procedure was followed for collecting the response and scoring the items.

**Data Collector Characteristics**: The characteristics such as age, gender, ethnicity, and language of the data collector may also affect the results. This threat was controlled completely in the present study by collecting and scoring the responses by the investigator himself.

**Data Collector Bias**: The data collector(s) may try to alter the data in such a way to make certain outputs in support for the hypothesis framed. Since there was no other data collector employed in the present study other than the investigator, there is no data collector bias in the present study.

**Experimental Mortality**: This is a threat due to the discontinuity in the participation of subjects during experiment period because of sickness, family transfer, death, or other reasons. In the present study, no subject was lost during the experiment period.

**Subject Characteristics**: The characteristics of subjects may vary in an experimental study. They may belong to different age group, socioeconomic background, intelligence and so on. In this study, only the first-year engineering students were selected to form the sample. All these students were admitted to the university through an entrance examination. They belonged to the same age group and capability. Thus, there was no subject bias.

### 3.18.2 Control of Threats to External Validity

The main external validity threats are location, the reactive effect of testing and reactive effects of the experimental procedures.

**Location**: A location threat can happen when the collected data produce alternative explanations for results. The performance of the sample may be affected if tests were administered in noisy or poorly lit rooms. In the present study, the location was held
constant for all the subjects who were involved in the experiment. The classroom sessions of the Holistic Education Intervention Programme was administered in a noise–free atmosphere and in a well-lit hall.

**Reactive Effect of Pre-Testing:** There can be a danger that the pre-test may affect the responsiveness of the sample to the treatment. The subjects may be more responsive to the knowledge given through treatment due to the pre-test measuring knowledge about the study. In the present study, all the tests were administered like normal classroom tests.

**Reactive Effects of the Experimental Procedures:** The interaction of experimental procedures and the treatment may produce an effect in an experimental study. This is known as “Hawthorne effect”. In the present study, all the sessions of the Holistic Education Programme were conducted during the regular class hours to avoid the perception that a special treatment was given to the sample.

### 3.19 Ethical Considerations

This experimental study was done in accordance with the ethical principles followed in using human subjects for conducting any research (APA, 2002). Informed consent was obtained from the concerned authorities of the University to conduct the experiment. Also, the participating students gave their consent to be part of the experiment. The University gave one credit to the students for attending this intervention as part of their first-semester study. This was an incentive for them to take this experiment seriously. The participating students were informed about the research design and procedures, and the time required for the completion of the experiment and other implications to be part of this intervention study. The information given by the participants through filling the questionnaires, sharing their experiences, group discussions and other means are kept confidentially, and their identities were not revealed to anyone at any point in time. The participants had full freedom to attend the sessions or withdraw from the intervention study at any time. For the activities like tour and village exposure where the overnight stay was involved their parents’ willingness also was obtained. Participants had been given the liberty to approach the researcher in person or through electronic media in case they wished to
discuss any matter concerning the intervention study. Thus, the participation was voluntary, and confidentiality was maintained all through the experiment.

3.20 Procedure of Data Collection

There were four phases in data collection. They are:

- Phase 1. The pre-test was conducted on the selected sample.
- Phase 2. The researcher administered Holistic Education intervention on the sample of students. An examination was conducted for their knowledge in the Holistic Education.
- Phase 3. A Post-test was administered immediately after the intervention.
- Phase 4. A delayed post-test was conducted after one month of the treatment period.

Data was collected in each phase and analysed using appropriate statistical tools.

3.21 Statistical Analysis:

The pre-test, post-test and delayed post-test results were compared statistically, and the results analysed using appropriate statistical techniques. A normality test was conducted on the data. The important statistical tools used in the analysis of the data are:

1. Arithmetic Mean
2. Standard Deviation
3. Karl Pearson’s Product Moment Coefficient of Correlation
4. t-test
5. Chi-square test
6. Mann-Whitney U Test
7. Kruskal-Wallis ANOVA
8. Shapiro-Wilk test
9. One-way ANOVA
10. Two-way ANOVA
11. Repeated Measures of ANOVA
12. Friedman’s two-way ANOVA
3.22 Conclusion

The present chapter has given in detail the methods used in the various phases of research in line with its objectives, the collection of data, ethical considerations when dealing with human beings, the structure of the intervention programme, the control of threats to internal and external validity, and the different statistical analyses employed for the study. Statistical Tools, Data Analysis and Interpretation of Results are presented in Chapter four.