CHAPTER-III
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RESEARCH METHODOLOGY

This chapter comprises of the following sections:

1. The Research Design,
2. Variables of the research,
3. Samples of the study,
4. Tools and Techniques,
5. [a] Administration of the tools,
   [b] Application of structured intervention strategic therapeutic material [SISTM] and
3.01 THE RESEARCH DESIGN

The design of a research is generally prepared taking into consideration the nature and type of the research. The present study, being an experimental one, focuses upon the attitude analysis and affected change in the people with locomotor disabilities [PLD]. For the purpose of attitudinal change, hundred loaded adjectives/traits/variants/interactive words have been located while going through the research references and classified in eight dimensions/areas viz. five disability specific (DS) and three area specific (AS). All statements as trait or variants are subjected to structured intervention strategic therapeutic material (SISTM). The design includes (i) choosing the important dependent variables as traits/variants, (ii) selecting samples as experimental and control groups, (iii) developing appropriate tools and techniques, (iv) administering the tools on the subjects, (v) application of SISTM, (vi) Administering the tools to compare the affect the SISTM on PLD and NDP as the step VI of the research study as per the research design and (vii) applying proper statistical procedures. All stated procedures as described herein are shown in the flow chart presented in Table: 3.1.
### Table 3.01 Solomon Research Design Flow Chart

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<tbody>
<tr>
<td></td>
<td></td>
<td>SRSNDP</td>
<td>Appendix-2</td>
<td>SRIPTL:</td>
<td>SRIPTL:</td>
<td>TRIO: AI</td>
<td>SISTM</td>
</tr>
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<td></td>
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<td>Appendix-3 &amp; 4</td>
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<td>E &amp; O</td>
<td>Appendix-5, 6,7</td>
<td>AFFECT:</td>
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<td>SISTM Appendix-11</td>
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<td>3 Devices:</td>
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<td>AI Compares:</td>
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<td>Table: 4.27</td>
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<td>INTELLIGENCE Appendix-9</td>
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<td>INFORMATIVE Appendix-11 [I]</td>
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<td>SOCIAL INTELLIGENCE Appendix-10</td>
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<td>PERSUASIVE Appendix-11 [II]</td>
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</tr>
<tr>
<td>GROUPS</td>
<td></td>
<td>+60 Sample</td>
<td>60 Sample</td>
<td>120 Sample</td>
<td>120 Sample</td>
<td>120 Sample</td>
<td></td>
</tr>
<tr>
<td>30 EG</td>
<td></td>
<td>PRE-TEST</td>
<td>SISTM</td>
<td>POST-TEST</td>
<td>TRIO: AI</td>
<td>AI Compares</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+TEST</td>
<td>DEVICE</td>
<td>TEST</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>SPM</td>
<td>INFORMATIVE</td>
<td>1. ATDI</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>SIRS</td>
<td>PERSUASIVE</td>
<td>2. ATWI</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>PERFORMANCE</td>
<td>3. ATAI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 ENG</td>
<td></td>
<td>NO TEST</td>
<td>SISTM: ACM Appendix-13</td>
<td>POST-TEST</td>
<td>TRIO: AI</td>
<td>AI Compares</td>
<td></td>
</tr>
<tr>
<td>30 CG</td>
<td></td>
<td>PRE-TEST</td>
<td>NO SISTM</td>
<td>POST-TEST</td>
<td>TRIO: AI</td>
<td>AI Compares</td>
<td></td>
</tr>
<tr>
<td>30 NG</td>
<td></td>
<td>NO-TEST</td>
<td>NO SISTM</td>
<td>POST-TEST</td>
<td>TRIO: AI</td>
<td>AI Compares</td>
<td></td>
</tr>
</tbody>
</table>

### 3.02 VARIABLES OF THE RESEARCH

The dependent variables of the study are as under:

1. **Attitude toward disability (DI),**

2. **Attitude toward body/self-image (DII),**
3. Attitude toward social behaviour (DIII),

4. Attitude toward parental behaviour (DIV),

5. Attitude toward professionals (DV),

6. Attitude toward discipline (DVI),

7. Attitude toward work (DVII) and

8. Attitude toward abilities (DVIII).

The independent variables of the study are as under:

1. Intelligence Quotient (IQ) and

2. Social Intelligence (SIS).

Each dimensional dependent variable is representing ten cluster of different traits/variants randomly intermingled. Eight dimensions conceived for the present study are manipulative in nature and are chosen to find out attitudinal change in the people with locomotor disabilities [PLD].
3.03 SAMPLE OF THE STUDY

This part contains the details relating to characteristics of disabled population, selection of samples and different centers as source to collect data for the measurement of variables of this study.

3.03.01 Population for the Study

The most significant decision preceding the collection of data pertains to delineating the population and selecting a sample that should represent the population as truly as possible. Hence one needs to examine precisely the nature of population in terms of its size, geographical expansion and the characteristics which are vital to the phenomenon.

In a research study, concept of population does not essentially refer to the number of people living in geographical region. Instead, by population we mean an aggregate of events, ideas, objects and observations that could possibly exist or occur within a vortex of space and time. In the present study, the population of disabled people refers to the number of adults in the age group of 15 to 35 years undergoing vocational training in the rehabilitation centres situated in Bhubaneswar (Orissa). It is obvious that for any experimental investigation complete enumeration of the population is rather impossible. If the population is infinite or finite, 100% enumeration is not possible because of multiplicity of causes, for example, financial implications time factor, administrative factor, nature of study, etc. With the help of sampling technique, this problem could be solved.
About hundred PLD undergoing vocational training in Bhubaneswar in the year 1998-1999 are considered as the population for the present study.

3.03.02 Characteristics of the disabled population

(1) Geographical Socialization

Geographical socialization is the process in which different kinds of adult PLD tend to occupy different centres.

(2) Sex

Both Male and Female were taken as the constituents of the population.

(3) Age

Population constituted adults in the age group of 15-35 years.

(4) Management of the Centres

Population of the study is distributed among the Centres run by government management [VRC], aided private management [OLS], non-aided voluntary/private management [SMRC] and government-society management [TCTD and TCTVH] all in Bhubaneswar city.
(5) Medium of Instruction

These Centres use different media of instruction. Most of the government, NGO and aided Centres use Oriya/English as the medium of instruction. But we have a few Centres run by different language groups viz. Oriya, Hindi and English as medium of usage in day to day affairs.

(6) Language

Most of the adults studied unto X Std. have Oriya as their mother tongue but Bhubaneswar being cosmopolitan in character, some proportion of adult PLD do not have mother tongue as Oriya. There are other languages groups also e.g. Telegu, Hindi, Marathi and English. But an overwhelming majority of adults are bilingual in character; they speak Oriya and English/Hindi with equal ease and fluency. Bhubaneswar being a capital town of Orissa, people almost are using Hindi or English as their main language of communication and in business dealing.

(7) Area

The population is spread in different urban and sub-urban areas of Bhubaneswar City. Considering the size of the population and nature of the present study, it is almost impossible to consider the whole of the population for the present study. Even otherwise the investigator can select a sample without vitiating the results, provided all the characteristics of the population are represented in the selected group of the subjects. It implies that the investigator should have a sample that represents the population fairly well, so that the
observations regarding the phenomenon made on the sample could be generalized for the whole population.

The concept and problem of sampling for the present study is stated as under:

**3.03.03 Sample**

Sukhatme (1953) defined sampling as a method of selecting a fraction of the population in a way that the selected sample represents the population. Sample can be classified into probability and non-probability sample [Table: 3.02]

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>PROBABILITY</th>
<th>NON-PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Random</td>
<td>Stratified</td>
</tr>
<tr>
<td></td>
<td>Cluster</td>
<td>Systematic</td>
</tr>
<tr>
<td></td>
<td>Purposive</td>
<td>Quota</td>
</tr>
<tr>
<td></td>
<td>Accidental</td>
<td></td>
</tr>
</tbody>
</table>

For the present study the sample has been selected for the three purposes:

(1) Sampling of non-disabled persons and rehabilitation professionals/ personnel for the selection of traits/ variants.
(2) Sampling of experts for the finalization of the inventories/tools and

(3) Sampling of subjects for the experiments and other observations.

3.03.04 Sampling of subjects for the experiment

According to Stephan and McCarthy (1958): Much scientific information is about populations that are only partially defined. This is true, for example, of psychological experiments on the factors that change attitudes. These experiments are almost always performed with a group of subjects that is not representative of the population of the city/state/country in which the experiments are done or of any similar population, however defined (Stephan and McCarthy, 1958).

As suggested by Stephan and McCarthy (1958), the investigator selected those PLD and NDP adults as a sample whom represent the population roughly. The adults from the five centres situated in Bhubaneswar were selected as a purposive sample for this study (Table 3.01 and 3.02).

3.03.05 CHARACTERISTICS OF THE SAMPLE

(1) Sex

Both male and female were selected as a sample.
(2) Age

15 to 35 year PLD and NDP adults were selected from either sex.

(3) Management of the Centres

Out of the five selected Centres, one Centre each fell under the Central Government, State Government, and State Government aided, non-aided voluntary organisation and Government society managed.

(4) Language and Medium of Instruction

Adults with Oriya as their mother tongue studied unto X Std. and knows English and Hindi were selected for the present study.

(5) Area

A sample of five centres was selected which are situated in the main, central and outer skirt of Bhubaneswar City.

3.03.06 SIZE OF THE SAMPLE

Since the present research study is of an experimental type, the investigator could not think of a very large sample. He had to depend on his own resources, cooperation of the RPP and PLD who are finally considered as the subjects of the study. Due to the complexity of the problem of the size of the sample, the investigator had to refer to the experimental studies conducted earlier.
Thurstone (1931); Lana (1961); Frederick, Paul and Alexander (1974); Romer (1979); Danes and Hunter (1980); Elliott and Byrd (1983); Koballa (1984); Field and Anderson (1985) conducted experiments involving number of subjects ranging from 60 to 172. Best and Kahn (1993) considered 30 sample as a large sample for experimental researches. In this background, investigator had to be content with the co-operation of 60 PLD and 60 NDP in the age group of 15-35 years as given in Table 3.03.

Out of these 120 subjects, 30 PLD adult subjects are selected purposively as EG who secures/got P 25 in SPM, 50% or SIS-25 score in SIRS and 5 or more negative variants at least in one dimension. 30 PLD adult subjects are selected randomly in CG who secured/got less than P-25 in SPM, less than 49% or SIS-24 score in SIRS and 4 or less positive traits at least in one dimension. 60 non-disabled persons/rehabilitation professionals/personnel are to form of 30 experimental non-disabled group as ENG and 30 non-disabled persons as NG for comparison as shown in Table 3.03 and 3.04.

Originally it was proposed to select equal number of subjects from five different Centres. Since it is an experimental study, all the 60 PLD cases were selected from VRC, Bhubaneswar [cf Appendix-01 (A) & (B)] for watching out the affect of SISTM. In addition to 60 PLD, 60 more NG are selected to form a experimental [ENG] and control [NG] group of non-disabled persons/normal individuals in addition to a group of 60 PLD. So finally, 120 subjects are selected as per the research methodology [Table 3.01] and details presented in Table 3.03 and Table 3.04.
## Table 3.03 DISTRIBUTION OF 60 PLD AND 60 NDP TO GROUPS

<table>
<thead>
<tr>
<th>Location</th>
<th>Group</th>
<th>Name of the centre</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>EG: PLD</td>
<td>VRC</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>CG: PLD</td>
<td>VRC</td>
<td>30</td>
</tr>
<tr>
<td>Urban</td>
<td>ENG: NDP</td>
<td>OLS</td>
<td>10</td>
</tr>
<tr>
<td>Semi-Rural</td>
<td>ENG: NDP</td>
<td>SMRC</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>ENG: NDP</td>
<td>TCTD</td>
<td>05</td>
</tr>
<tr>
<td>Semi-Rural</td>
<td>ENG: NDP</td>
<td>TCTVH</td>
<td>05</td>
</tr>
<tr>
<td>Urban</td>
<td>NG: NDP</td>
<td>ALL CENTRES</td>
<td>30</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

## Table 3.04 DISTRIBUTION OF 60 PLD AND 60 NDP ACCORDING TO SERVICE AREA AND MANAGEMENT

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Management</th>
<th>Name of Centre</th>
<th>Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>CG</td>
<td>Vocational Rehabilitation Centre</td>
<td>60</td>
</tr>
<tr>
<td>Urban</td>
<td>NGO</td>
<td>Open Learning System</td>
<td>12</td>
</tr>
<tr>
<td>Semi-Urban</td>
<td>NGO</td>
<td>Shanta Memorial Rehabilitation Centre</td>
<td>09</td>
</tr>
<tr>
<td>Semi-Rural</td>
<td>CG Society</td>
<td>Training Centre for the Teachers of Deaf</td>
<td>15</td>
</tr>
<tr>
<td>Semi-Rural</td>
<td>CG Society</td>
<td>Training Centre for the Teachers of V.H</td>
<td>15</td>
</tr>
<tr>
<td>State</td>
<td>CG</td>
<td>VRC</td>
<td>09</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>
The size of the sample differed for different experimental stages of this study. The experiment was divided into six different stages:

(i) Pre-experimental stage (SRSNDP-50, SPM-30 AND SIRS-30);

(ii) Pre-test stage (SRIPLD-E & SRIPLD-O-60);

(iii) Manipulative-cum-intervention stage (SISTM-30, SISTM:ACM-30);

(iv) Post-experimental stage (SRIPLD-E & SRIPLD-O-120);

(v) First Assessment of the 120 subjects through Oriya version of ATDI, ATWI and ATAI after 90 days to see the affect of SISTM on the ALL PLD and NDP cases and

(vi) Second Assessment of 120 [EG and ENG] subjects through Trio-AIs after 180 days through Trio-AIs.

The size of the sample for each terminal stage is reported in Table 3.05.

Table: 3.05 SAMPLE CASES IN DIFFERENT STAGES

<table>
<thead>
<tr>
<th>STAGE</th>
<th>CASES</th>
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<tbody>
<tr>
<td>FIRST</td>
<td>110</td>
</tr>
<tr>
<td>SECOND</td>
<td>60</td>
</tr>
<tr>
<td>THIRD</td>
<td>60</td>
</tr>
<tr>
<td>FOURTH</td>
<td>120</td>
</tr>
<tr>
<td>FIFTH</td>
<td>120</td>
</tr>
<tr>
<td>SIXTH</td>
<td>120</td>
</tr>
</tbody>
</table>
The numbers of subjects selected are as per the large sample size of Solomon experimental design of the research study (Table 3.03) and four groups formed for the six steps for experimentation as stated above (cf. Table 3.01).

3.03.07 SELECTION OF CENTRES

Out of 135 rehabilitation facilities situated in Orissa, only 9 Centres are situated in Bhubaneswar. Out of 9, only 5 Centres as mentioned in the Table 3.03 are selected because of:

(1) Both Male and Female are admitted in these Centres.

(2) The subjects from each Centre have a specific socio-economic condition i.e., in the Open Learning System and Shanta Memorial Rehabilitation Centre; the subjects came from relatively higher socio-economic status background. In Training Centre for the Teachers of the Deaf and Training Centre for the Teachers of Visually Handicapped, the subjects came from the middle socio-economic status background whereas in the Vocational Rehabilitation Centre for Handicapped, the subjects came from lower socio-economic background.

(3) The most important aspect of the selection of above mentioned five Centres were their management. Different management’s managed these centres, and hence they have different atmosphere. In the present study, centres’ atmospheres were taken as one of the factors in SISTM influencing the attitudes of the subject.
(4) The Heads of these centres and Rehabilitation Professionals/Personnel of these centres extended their full cooperation.

3.04 TOOLS AND TECHNIQUES

The research problem called for the administration of a number of tools to measure different variables involved in it. Considering the availability, applicability and usability of the tools, the investigator of the present study could not locate a valid and reliable tool in Oriya language for this research study. Hence, he has to conceive, develop or translate and administer the appropriate tools, techniques and SISTM, which could be broadly divided into two categories:

(1) Standardized tools, and

(2) Tools prepared or adopted by the investigator.

The standardized tools are the ones regarding which we know the norms, reliability and validity that are empirically determined. Besides, while talking about the tools, it is not only the individual variables that have to be assessed scientifically, but also the tools that could be used for the purpose of administering the experimental correctional treatment on the dependent variables under study.
Another way of categorizing the tools used for the present study is:

I. **Tools used for the measurement of independent variables;**

II. **Tools used for the measurement of dependent variables; and**

III. **Tools used for the experimental treatment [SISTM] of the subjects.**

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**I. TOOLS USED FOR THE MEASUREMENT OF INDEPENDENT VARIABLES**

The independent variables considered in this investigation are:

(a) Intelligence (para 3.04.01) as Percentile and,

(b) Social Intelligence (para 3.04.02) as Social Intelligence Score.

**3.04.01 MEASUREMENT OF INTELLIGENCE**

To the layman, the Intelligence is not identified with a particular type of score on a particular test, but is often a short form/designation for mental faculty to think, to act and to deliver the goods meaningfully and purposively. However, a more precise approach to the context yields a number of definitions for the term. Basically intelligence is conceived as a
specific word. According to Vernon (1950), intelligence is, “all-round thinking capacity” or “mental efficiency”; according to Piaget (1947), it is “adaptation to the physical and social environment; according to Weschler (1975), intelligence is, “the aggregate or global capacity of the individual to act purposefully, to deal rationally and to deal effectively with the environment”. Thus we may say that intelligence is an indicator of the ability to cope successfully with novel situations.

Though a number of tests have been evolved to assess the intelligence in advanced countries, yet in India only a few tests are available which could be used to assess the intelligence of the PLD sample of this study. In India, there are tests of intelligence available relatively in greater numbers in Hindi for general population. With due considerations to the reliability, validity, availability of norms and usability of the tool to be used for measuring intelligence, the investigator selected the Raven’s Standard Progressive Matrices [SPM-Sets A, B, C, D and E] test of intelligence for administration in the present study.

SPM purports to measure the abstract intelligence including adults. The test has two forms-non-verbal test of Coloured Progressive Matrices (CPM) and non-verbal test of SPM, each of which has five sub-tests. For maintaining the culture fairness including the problem of language, the non-verbal form of SPM of the intelligence test is administered in the present study. No test of intelligence is available in Oriya language meant for PLD or PWD or norms developed of any standard test for Oriya PLD population.
The SPM consists of 60 questions, divided into five sub-tests A, B, C, D and E of equal length (12 each). This SPM test is used as power test in this study without any time limit.

(i) Scoring of the Test

One score/mark (01) is provided for each correct answer and no mark/score (00) for wrong answer. Therefore the maximum marks which a subject could obtain are 60.

(ii) Reliability

Over forty studies dealing with the reliability of the SPM have been reported in the literature. The SPM has been widely standardized on both male and female samples. The test-retest reliability of the tool is reported in between 0.83 to 0.93 and split-half reliability is reported in between 0.84 and 0.93.

(iii) Validity

The concurrent and predictive validities of the SPM vary with the age, possibly sex, the homogeneity of the sample and the conceptual relevance of the criterion to which the SPM will be related and the quality of its assessment. The criterion-oriented validity ranges in between 0.54 to 0.95. The content validity ranges in between 0.20 to 0.80. Internal validity of the test has been reported to be ranging from 0.69 to 0.80.
(iv) Determination of Intelligence's as percentile range

Different types of norms have been fixed to compare the performance of a subject with the performance of the standardization sample, which is a true representative of the population. The norms are available for the age group of 15-35 years. The raw scores obtained by the subjects are converted into Percentiles using Table SPM 20 smoothened Norms for Adults in the context of 1992 Data. Information about the chronological age of the subjects is collected from the test answer-sheet.

(SPM Answer-Sheet is appended at Appendix-09)

3.04.02 MEASUREMENT OF SOCIAL INTELLIGENCE

In view of the significance of social intelligence in the formation of attitude, the investigator has to see its significance in attitudinal change. Referring to the research reviews involving social intelligence, it is found that there are not many such studies. The relevant issues relating to the social intelligence are discussed as under:

(i) Definitions of Social Intelligence

Thorndike (1920) pointed out that there is an aspect of personality that can be called "social intelligence". According to him, "social intelligence is an ability to understand and
deal with persons.” The intent of the paper of McClatchy (1929) was to point out the reasonableness of supporting the valid measurement of social intelligence which should fit into the results of other investigations, either by logic or by experimentation. Bureau of Publication, Personnel Administrative Staff (1930) defines: Social intelligence as the ability to adjust to new situations involving relations with other people and to adopt a course of action which is effective in the sense that it leads others to do consistently and voluntarily the thing it is desired they should do. Strang (1930) in his paper revealed that social intelligence has two aspects not necessarily related with each other: the knowledge aspect and the functional aspect. According to Popa (1935): Social intelligence is the ability of adaptation to social environment and the ability to transform and adapt the social environment to the needs of the individual.

(ii) Measurement of Social Intelligence

Only a few social intelligence tests have been devised by the social scientists. Bur.Pub. Person. Admin. Staff (1930) organised a 40-minute test to measure social intelligence. The test includes 150 items in short answer form dealing with factual information on types of people and behaviour. Moss et. al.(1929) as reported by Cronbach, developed a test of social intelligence. There were four subsets in the Revised Version in 1944. These are judgement in common-sense social problems; matching statements with the emotions expressed; everyday psychological generalizations in true-false form and completion of joke. According to Cronbach (1959) this test measures general or verbal ability
to some degree, but there is no evidence that it measures only distinct ability which has practical predictive value.

Buch (1960) in his research work selected the subsets of social intelligence on the basis of certain independent findings supported by the content analysis of the available tests of social intelligence. The subsets included in his test were judgement in social situation; memory for names and faces; observation of human behaviour; recognition of the mental stage of the speaker; sense of humour and social introduction. According to Burtt (1962) only few social intelligence tests have been devised. He also added that in one type of item a subject must recognize a social situation to detect the wrong word in each group of words as quickly as possible. In another subset as Burtt suggests, the subject indicates in which situation the remark will be appropriate. Ray (1972) in his D. Phil. (Psy.), prepared 80 items distributed over six sub-tests corresponding to six different areas of human behaviour, namely; judgement of social situation; observation of human behaviour; recognition of mental stages; memory of names and faces; appreciation of human, and adjustment. This test was used for university graduates of age 18+. Reliability coefficient for the whole test was 0.737. Chadha and Ganesan (1986) constructed and standardized a social intelligence scale for the college students.

On the basis of the tests that have been developed in India for administration to Indian subjects, the investigator found that there was no test that could be administered to the PLD in the age group of 15-35 years. After studying the three tests developed in India comparatively it was found that the social Intelligence scale by Chadha and Ganesan is most
comprehensive. The Chadha and Ganesan social intelligence scale has been conceived to be constituted of eight aspects. Their operationally defined structure was as under:

1. **Patience**: Calm endurance under stressful situations.

2. **Co-operativeness**: Ability to interact with others in a pleasant way to be able to view matters from all angles.

3. **Confidence Level**: Firm trust in oneself and one's chances.

4. **Sensitivity**: To be acutely aware of and responsive to human behaviour.

5. **Recognition of Social Environment**: Ability to perceive the nature and atmosphere of the existing situation.

6. **Tactfulness**: Delicate perception of the right thing to say or do.

7. **Sense of Humour**: Capacity to feel and cause amusement, to be able to see the lighter side of life.

8. **Memory**: Ability to remember all relevant issues, names and faces of people.

The investigator is left with two choices so far as the measurement of social intelligence of his subjects is concerned: (i) construct a tool which could be similar to the one prepared by Chadha and Ganesan or (ii) think of some alternative procedure, equally scientific for the measurement of social intelligence. Out of these two choices, the
investigator chooses the first for the measurement of social intelligence with slight modification.

(iii) **Planning and Preparation of the Social Intelligence Rating Scale**

After a preliminary acquaintance with the subjects of the study it is found that their responses to the items pertaining to Chadha and Ganesan's social intelligence scale could not be reliable. After discussing the problem with experts, it is found that it would be better if the PLD could be got rated by the experts who had a chance to observe them so far as their social intelligence is concerned. Finally, the ten variables in addition to eight aspects of the Chadha and Ganesan scale are adopted/formulated and discussed with the Rehabilitation Professionals/personnel.

Finally, the ten variables considered along with their definitions are:

1. Patience,
2. Co-operativeness,
3. Confidence level,
4. Sensitivity,
5. Tactfulness,
6. Sense of humour,
(7) Memory of name and faces,

(8) Adjustment,

(9) Appreciation of human (Ray, 1972), and

(10) Recognition of social environment (Popa, 1935).

(iv) Administration of the Social Intelligence Rating Scale

For the measurement of social intelligence, a tool constituted of the aforementioned ten variables/aspects are prepared and a Proforma is finally evolved in order to get each of the subjects rated for social intelligence by the Rehabilitation Professionals/Personnel including the investigator. Five Vocational Instructors are considered as raters for these subjects and verified by the investigator. For example, the rehabilitation professional/personnel had to rate a PLD subject on the five-point scale as:

Aspect: Memory

He/She recall the names of the PLD as rated on five point scale as 5 the highest and 1 the lowest:

\[
\begin{array}{cccccc}
5 & 4 & 3 & 2 & 1 \\
\text{Maximum} & \text{Above} & \text{Average} & \text{Below} & \text{Poor}
\end{array}
\]

Average

Average

(The SIRS Proforma of the social intelligence is attached to Appendix-10).
(v) Scoring of Social Intelligence Rating Scale

The tool is discussed thoroughly with the raters who are supposed to rate the subjects on 5-point scale. The situations are explained to them and they are informed about the implications of the 5-point scale. The rehabilitation professionals/personnel ratings are considered to be valid due to the fact that they have ample opportunity to observe the PLD in different situations in which the operation of social intelligence is called for, and the said intelligence as a human ability gets manifested. If a subject is placed at the point 4 in the 5 point rating scale, then his score will be 4. Similarly the rater is supposed to give the rating to every subject on all the ten variables/aspects of social intelligence scale. The sum of all the ten ratings obtained by a subject represents the score obtained by PLD on social intelligence.

Thus the maximum score an individual subject could have is 50 and minimum score could be 10. There is no zero point in the scale because it is assumed/argued that even the dullest subject has some social intelligence because he has the capability to comprehend the social relationships howsoever restricted and narrow his social psychological field and the perception thereof might be.

The scale is administered twice by the investigator in the beginning and later on after fourth step with two explicit objects in mind: (i) to take the average of the scores obtained by a subject in the two administrations and (ii) to determine the reliability of the ratings e.g. a subject obtained a SIS-21 score in the first administration and SIS-25 SCORE in the second
administration. His/Her score for the purpose of the present project was considered to be the mean of the two scores.

(v) Reliability of the Social Intelligence Rating Scale

The present rating scale, as already stated are conceptually borrowed from Chadha and Ganesan. This Scale was constituted of 8 dimensions with different number of items in each dimension. Bharambe (1992) examined the reliability of scale dimensionwise and reported the reliability coefficients ranging between 0.84 to 0.97. Hence, instead of preparing a number of items pertaining to each of the 10 variables/dimensions, the investigator has to depend on one rating, which is done by the RPP and the other by the investigator. Thus the reliability of the present tool is practically the reliability of the RPP ratings of the social intelligence of the subjects.

(vi) Validity of the Social Intelligence Rating Scale

Needless to say the basic characteristics of a good tool are reliability and validity. There is no doubt that rating scale is essentially a subjective measurement. However, because there are no alternative, it has to be accepted. So the effort are made to examine the face validity and content validity of the tool. The questions discussed with the experts in order to examine the validity of the tool pertained to (i) suitability of the situations, (ii) suitability of the rating scale and (iii) conceptual base of the tool. All the suggestions received in this regard are listed and finally discussed with the RPP with the result the present tool is considered to possess face and content validity.
II TOOLS USED FOR THE MEASUREMENT OF DEPENDENT VARIABLES

The success of a research depends upon (a) how appropriately the tools are selected, (b) how scientifically the data collecting techniques are applied and (c) how adequately the relevant information are collected. As the present investigation is focussing on the attitude change of the persons with locomotor disabilities in eight dimensions (5 DS and 3 AS), the investigator decided to use the following tools and techniques:

1. Development of self-report schedule of non-disabled persons (NDP) in English [SRSNDP-E] by the investigator (para 3.04.03, cf Appendix-02),

2. Development of self-report inventory of people with locomotor disabilities in English (SRINDP/PLD-E) by the investigator (para 3.04.04, cf Appendix-03),

3. Development of self-report inventory of people with locomotor disabilities in Oriya (SRIPLD-O) by the investigator (para 3.04.05, cf Appendix-04),

4. Attitude Toward Discipline Inventory developed by Bharambe (1992) in Marathi is adopted and translated by the investigator in English and Oriya (ATDI-E & ATDI-O) (para 3.04.06, Appendix-05),

5. Attitude Toward Work Inventory developed by Bharambe(1992) in Marathi is adopted and translated by the investigator in English and Oriya (ATWI-E & ATWI-O) (para 3.04.07, cf Appendix-06) and
(6) Attitude Toward Abilities Inventory developed by the investigator both in English and Oriya as per the concept of Indian Model of Ability (Chandra-2000) (ATAI-E & ATAI-O) (para 3.04.08, cf Appendix-07).

The development and administration of tools as well as development and applicability of intervention material as correctional technique (SISTM) are hereby discussed as under:

3.04.03 SELF-REPORT SCHEDULE OF NON-DISABLED PERSONS (SRSNDP-E)

The first step in the process of constructing the proper tool for PLD is to select number of appropriate words/adjectives/traits/variants/interactions, which could be the basis for the development of meaningful statements to explore the pattern of attitude of PLD. Thurstone and Clave (1929) used 130 statements, Miller (1934) used 159 statements, Hinckley and Hinckley (1939) selected 188 statements and Balogh and Mueller (1960) selected 100 statements. Oppenheim (1968) gives some rough idea of number of statements and number of judges required for the construction of attitude scale: “one might have 100-150 statements and 40-60 judges”.

(i) Purpose and procedure of word selection

For selecting those words to be included in the SRSNDP-E, the investigator has made intensive study of the related literature as mentioned in para 2.02; drawn common loaded
words representing different traits viewed as negative variants by different rehabilitation professionals/personnel for the persons with locomotor disabilities and made a list of negative loaded words to be included in the schedule. The investigator has discussion and consultation with the specialists in the field of psychology, research scholars and rehabilitation professionals. Finally, the hundred words are selected and inducted in the schedule for the development of this technique. These 100 words represent attitude as positive traits, negative variants and indifferent adjectives/interactions as variants.

The SRINDP-E is given to 50 RPP as per the instructions contained in Appendix-02. The Likert scaling technique is used varying from approved/agreed/positive to disapproved/disagreed/negative having the maximum mark for agreed (2), minimum mark to disagreed (1) and for the mark/score to undecided, uncertain or cannot say replies as (0). The response are rated as:

<table>
<thead>
<tr>
<th>Mark</th>
<th>Response of word selection</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>_/</td>
<td>Positive/Agreed/Approved</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>Undecided/Uncertain/Can’t say</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>Negative/Disagreed/Disapprove</td>
<td>1</td>
</tr>
</tbody>
</table>

SRSNDP-E is a simple and direct way of collecting information from non-disabled rehabilitation professionals/personnel who are forming/representing in NDP group about hundred loaded words/adjectives/traits/variants/interactions. Their replies are representing the responses of NDP group and also of those who are working in the field of Rehabilitation of
PWD/PLD. After taking the responses from the NDP-RPP (NG and ENG), the total zero (0) or least ranked negative responses are eliminated to delimit the words as 10 traits/variants per dimension. The words are also discussed with the persons with disabilities. The researcher collected the response from all Rehabilitation Professionals/personnel and delimited the words as per their advice not to make statements all positive or all negative and the nature of traits/variants to 10 each in each dimension. After completing this primary exercise of trait/variant focussed selection, the researcher drafted a self-report schedule for the people with locomotor disabilities in English having 80 statements, 10 each in eight dimensions (SRSPLD-E) (Appendix-02).

(ii) To whom the SRSNDP-E is to be provided

SRSNDP-E is an excellent technique for getting self-reported negative variants/attitudes. Since the RPP are working with the PLD, they are in better position to point out the positive traits and negative variants. Hence, the present SRSNDP-E has been developed to obtain responses from the NDP-RPP to decide the core content of drafting the statements as negative variant and positive trait attitude-seeking statements in SRINDP-E, SRIPLD-E and SRIPLD-O.

(iii) Sorting out those words who have negative variant

Responses of the NDP-RPP in the SRSNDP-E format are found to be in the form of ticks, crosses or question mark in the space provided against each word. Those words ranked
lowest in the SRSNDP-E are analyzed further before the development of SRIPLD-E as Attitudinal Analysis of Statements (Appendix-08). As per the scaling technique, all Question (?) marked replies are left out and negative loaded/rated word least have been included in the development of Self-Report Inventory of Persons with Locomotor Disabilities.

(The SRSNDP-E Proforma is attached cf Appendix-02).

3.04.04 SELF-REPORT INVENTORY OF PERSONS WITH LOCOMOTOR DISABILITIES IN ENGLISH (SRINDP/PLD-E)

SRSNDP-E is a simple and direct way of locating/eliciting attitudinal pattern related information from those people who are having locomotor disabilities or PLD. It consists of words related to five disability specific (DS) attitudinal dimensions and words related to three area specific (AS) attitudinal dimensions identified through SRSNDP-E step of research-tool construction for the study (cf. para 3.04.03).

The available research references and related work are thoroughly reviewed. It is found that no attitude scale/inventory is available in India which can focus upon various disability specific and area specific aspects of attitudes of disabilities for which PLD might be having different intensity, duration, magnitude and direction as negative or positive or indifferent/neutral attitude. The eight dimensions selected from the PLD angle are My Disability, Myself, My parents, Other disabled persons, Professionals, Discipline, Work and Abilities. After locating disability specific five dimensions and area specific three dimensions
through SRSNDP-E, the researcher developed total eighty statements with having ten negative or positive statements in each dimension and sends the draft inventory to fifteen professionals drawn from the field of Psychology. They are also asked about the nature of statement as negative or positive. The statements were also discussed with the PLD/PWD and those who are well conversant about the thrust area of research on PLD/PWD. Out of fifteen experts, the researcher received the response from twelve experts and changed the statements as per their advice and the nature of traits/variants keeping to ten statements in each dimension. After completing this exercise, the researcher drafted a self-report inventory of people with locomotor disability in English having eighty statements, ten statements in each dimension of (i) Attitude toward my disability, (ii) Attitude toward myself, (iii) Attitude toward other disabled people, (iv) Attitude toward own parents, (v) Attitude toward professionals, (vi) Attitude toward discipline, (vii) Attitude toward work and (viii) Attitude toward my inherent abilities. The nature of dimensional statement is intermingled as stated in the Appendix-08.

The Likert scaling technique was used varying from strongly agreed to strongly disagreed having the maximum marks for strongly agreed as five (5) to strongly disagreed as one (1) and three (3) marks for undecided, uncertain or can’t say replies.

(i) Purpose and procedure of statement drafting

The SRINDP/PLD-E has been developed to sort out those people with locomotor disabilities who are having negative variants. Hence, 80 statements in 8 dimensions are
worded/prepared in such a way to form the statements in mixed manner and be the basis of 32 variants and 48 traits. The positive replies to any statement as per Appendix-3 (D) that has been dropped due to nature of study. Language experts and professionals working with locomotor disabilities who are well conversant with Oriya culture and language also judge language comprehensibility of these statements. Finally SRINDP/PLD-E are given to some graduate PLD to check out any difficulty in understanding the concepts/terms used in it. These statements represent the attitude/impact of disability (DI), the attitude/affect of self/body-image (DII), the attitude/affect on social behaviour (DIII), the attitude toward/impact of parental behaviour (DIV), attitude toward professional behaviour (DV), attitude toward discipline (DVI), attitude toward work (DVII), and attitude toward inherent abilities (DVIII). These dimensions are chosen on the feedback from RPP, psychology professionals, PLD and PWD.

(ii) Description of Technique

The present SRINDP/PLD-E consists of 80 statements in eight dimensions to be responded. Each statement represents a trait bearing an affinity with the attitude having the chances to be responded negatively by disagreeing or strongly disagreeing toward the positive description to it.

The instructions to the respondent is to read a statement and give his/her response on the answer-sheet separately provided whether he agrees or disagrees with intensity and direction as under:
(iii) How to reply?

Give your reply by marking _/; _/; ?; X; and XX in the given answer-sheet as follows:

<table>
<thead>
<tr>
<th>Reply</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>If strongly agreed, then</td>
<td><em>/</em></td>
</tr>
<tr>
<td>If agreed, then</td>
<td>_/</td>
</tr>
<tr>
<td>If undecided or uncertain or cannot say</td>
<td>?</td>
</tr>
<tr>
<td>If disagreed, then</td>
<td>X</td>
</tr>
<tr>
<td>If strongly disagreed, then</td>
<td>XX</td>
</tr>
</tbody>
</table>

SRINDP/PLD-E has been administered to 60 NDP. The replies are being marked on the SRINDP/PLD-E answer-sheet provided. The inventory has been appended at Appendix-3 (E) and ANSWER-SHEET at Appendix-3 (B).

The SRINDP/PLD-E answer sheet contains 8 columns representing 8 dimensions. Statement S01 to S10 represent dimension DI, statement S11 to S20 represent dimension DII, statement S21 to S30 represent dimension DIII, statement S31 to S40 represent dimension DIV, statement S41 to S50 represent dimension DV. These 5 dimensions are disability specific (DS). Statement S51 to S60 represents dimension DVI, statements S61 to S70 represent dimension DVII and statement S71 to S80 represent dimension DVIII. These three dimensions are area specific (AS). Then, after collecting the marking as the responses, the total raw scores and negative variants are being calculated in case of all 60 PLD and 60 NDP.
(iv) To whom the SRINDP/PLD-E is to be provided

SRINDP/PLD-E is an excellent technique for getting self-reported negative attitudes. The present SRINDP/PLD-E inventory/technique has been developed to obtain responses from the non-disabled persons. This will facilitate and form the basis to draw sample of NDP to represent both experimental group (ENG) and control group (NG).

(v) Sorting out those NDP who have negative variant

Responses of the locomotor disabled persons in the SRINDP/PLD-E format are found to be in the form of ticks, crosses or question mark in the space provided against each statement. Those responses are to be sorted out through the sorting key as mentioned in Appendix-03 (C). Sorting out of negative PLD is made as per the criteria given here as:

(i) A NDP who got five or more negative variants at least in one dimension will form a sample case of experimental group and;

(ii) A NDP who got four or less negative variants at least in one dimension will form a sample case of control group.

In this study which is focusing upon the attitude change amongst PLD, the focus is

(a) to change the negative trait as variant in positive direction or
(b) to reduce the intensity in negative direction.

Thus the cases sorted out through SRINDP/PLD-E comprising five or more negative traits in one dimension became the subjects of experimental group's Pre-testing, SISTM, Post-testing and Re-testing and to compare.

3.04.05 SELF REPORT INVENTORY OF PEOPLE WITH LOCOMOTOR DISABILITIES IN ORIYA [SRIPLD-O]

SRIPLD-O is a simple and direct way of eliciting information from those people who are having locomotor disabilities or PLD. It consists of five dimensions related to the attitudes as disability specific (DS) and three dimensions related to the attitudes as area specific (AS) identified through SRSNDP-E step of research-tool construction for the study (cf. para 3.04.03). It consists of five dimensions (DI, DII, DIII, DIV and DV) related to the impact of disability on the lives of PLD whereas three areas of PLD (DVI, DVII and DVIII) are related to lives of PLD as well as has been selected by the researcher for SISTM.

The available literature on the subjects related to locomotor disability was thoroughly reviewed and it was found that no attitude scale is available in this field in Oriya language that can focus upon various aspects of disabilities for which PLD might be having negative attitudes. Hence, the English version of SRIPLD-E is translated with the help of linguistic
experts with the input from disabled persons and rehabilitation professionals/personnel. This may be adopted and data collected to know the negative traits or variants of the people with locomotor disabilities. By this way an inventory came into being as SRIPLD-O having 8 dimensions consisting of My Disability, Myself, Other disabled parents, My parents, Professionals, Discipline, Work and Inherent abilities. The SRIPLD-O consists of 80 statements in Oriya language and was administered on the persons with locomotor disabilities with the instructions to give their replies on the answer sheet supplied prior to administering the inventory.

The Likert scaling technique was used viz. Varying from strongly agreed to strongly disagreed having the maximum marks for strongly agreed (5) to strongly disagreed (1) with 3 marks for undecided, uncertain or cannot say replies.

(i) Purpose and procedure of item selection:

The SRIPLD-O has been developed to sort out those people with locomotor disabilities who are having negative variants. Hence, 80 statements in 8 dimensions have been included in it. These dimensions represent the attitude toward disability, the attitude toward self/body-image, attitude toward other disabled people, attitude toward own parents, attitude toward professional behaviour, attitude towards discipline, attitude towards work and attitude towards abilities. These dimensions are chosen as a representative of common
attitudes in negative directions in the people with locomotor disabilities might be having in general.

Finally, these statements in Oriya are translated from SRIPLD-E and inducted in the technique. 80 statements representing attitude traits/variants in 8 dimensions are the basis of these 80 variants. Language comprehensibility of these statements were also judged by language experts and professionals working with locomotor disabilities and well conversant with Oriya language. Finally SRIPLD-O was given to some graduate disabled persons to check out any difficulty in understanding the terms used in it.

(ii) Description of Technique

The present SRIPLD-O consists of 80 statements in 8 dimensions to be responded. Each statement represents a trait bearing an affinity with the attitude having the chances of having responded by the PLD negatively by disagreeing or strongly disagreeing toward the description with it.

This SRIPLD-O was given to 60 PLD and 30 NDP to respond on the answer sheet as per the instructions given therein.

The instruction to the respondent is to read a statement and give his/her response whether s/he agrees or disagrees with intensity and direction as under:
(iii) **How to reply?**

<table>
<thead>
<tr>
<th>Reply</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>If strongly agreed, then</td>
<td><em>/</em> (two ticks)</td>
</tr>
<tr>
<td>If agreed, then</td>
<td>_/ (one tick)</td>
</tr>
<tr>
<td>If undecided or uncertain or cannot say</td>
<td>? (question mark)</td>
</tr>
<tr>
<td>If disagreed, then</td>
<td>X (one cross)</td>
</tr>
<tr>
<td>If strongly disagreed, then</td>
<td>XX (two crosses)</td>
</tr>
</tbody>
</table>

After administering SRIPLD-O to the locomotor disabled persons the replies are being marked in SRIPLD-O answer sheet. The inventory has been appended at Appendix-4 (A) and answer-sheet at Appendix-4 (B).

The SRIPLD-O answer sheet contains 8 columns representing 8 dimensions. Item S1 to S10 represents dimension DI, statement S11 to S20 represent dimension DII, statement S21 to S30 representing dimension DIII, statement S31 to S40 representing dimension DIV and statement S41 to S50 representing dimension DV. These 5 dimensions are disability specific. Statement S51 to S60 represents area DVI, statements S61 to S70 represents area DVII and statement S71 to S80 represents area DVIII which is focussing upon the intervention area techniques of SISTM.
Then, after marking the responses, the total raw scores and negative traits are being located in case of persons with locomotor disabilities.

v) To whom the SRIPLD-O is to be provided

SRIPLD-O is an excellent technique for getting self-reported negative attitudes of PLD. The present SRIPLD-O technique has been developed to obtain responses from the locomotor disabled persons represent both experimental group [EG] of PLD and the control group [CG] of PLD.

(v) Sorting out those PLD who have negative variant

Responses of the locomotor disabled persons in the SRIPLD-O format are found to be in the form of ticks, crosses or question mark in the space provided on the answer sheet. Those negative responses are to be sorted out through the sorting key as mentioned in Appendix-04 (C). Sorting out of negative PLD is made as per the criteria given below:

(a) A PLD who got 5 or more negative variant in at least one dimension will form a subject of experimental group and;

(b) A PLD who got 4 or less negative variant at least in one dimension will form a subject of control group.
In this study which is focussing upon the attitude change amongst locomotor disabled persons, the focus is to change the negative variant as positive one or to reduce the intensity in positive direction.

Thus the cases sorted out through SRIPLD-O comprising five or more negative variants in one dimensions became the subjects of experimental group’s Pre-testing, SISTM, Post-testing and Re-testing and to compare.

3.04.06 ATTITUDE TOWARD DISCIPLINE INVENTORY (ATDI-E & O)

Both the inventories i.e. SRINDP/PLD-E and SRIPLD-O have dimensions DVI relating to Attitude toward discipline. DVI dimensions have 10 dimensions from S-51 to S-60.

The investigator thought it proper to have a standard inventory to test SISTM for attitude toward discipline. While going through the literature the investigator found an Attitude inventory for attitude toward cleanliness developed by Bharambe (1992) in Marathi. The investigator considered cleanliness as a way of maintaining discipline and having positive attitude towards discipline. Hence, the attitude toward cleanliness inventory developed by Bharambe was translated both in English and in Oriya, which are appended at Appendix-5 (A) in English and at Appendix-5 (B) in Oriya. Both comprise 18 statements and have the scale value varies from 1(strongly disagreed) to 5(strongly agreed). Hence, the
maximum score of the inventory is 90. The least the score the negative attitude is more while more the score the positive attitude is more.

The inventory was sent to 100 experts and the parallel form of attitude scale was developed. The scale values and Q values of the items were calculated and 20 items were selected for the final scale. These 20 items were printed in random order for administration. In order to avoid unnecessary influence of the non-contiguous endorsements, median is preferable to mean and also scoring by median is less time consuming.

The product-moment ‘r’ between two forms is found to be equal to 0.68 and the index of reliability found as suggested by Garrett (1979) is 0.82. The item validity was found and out of 20 last two items from the form 1 were discarded and remaining 18 items were included in the final attitude scale. The content validity of the scale is based upon the item selection. Items were selected on the basis of agreement among judges regarding their content validity. Therefore, the method of construction itself ensures a sufficient degree of content validity itself that amounts to the content validity of the total scale.

3.04.07 ATTITUDE TOWARD WORK INVENTORY (ATWI-E& O)

Both the inventories i.e. SRINDP/PLD-E and SRIPLD-O have dimensions DVII relating to Attitude toward Work. DVII dimension has 10 dimensions from S61 to S70.
The investigator thought it proper to have a standard inventory to test SISTM for attitude toward work. While going through the literature the investigator found an Attitude inventory for attitude toward work developed by Bharambe (1992) in Marathi. The investigator considered work as a way of maintaining positive attitude and having positive attitude towards work. Hence, the attitude toward work inventory developed by Bharambe was translated both in English and in Oriya, which are appended at Appendix-6 (A) in English and at Appendix-6 (B) in Oriya. Both comprise 18 statements and have the scale value varies from 1 (strongly disagreed) to 5 (strongly agreed). Hence, the maximum score of the inventory is 90. The least the score, the negative attitude is more while more the score, the positive attitude is more.

The inventory was sent to 100 experts and the parallel form of attitude scale was developed. The scale values and Q values of the items were calculated and 20 items were selected for the final scale. These 20 items were printed in random order for administration. In order to avoid unnecessary influence of the non-contiguous endorsements, median is preferable to mean and also scoring by median is less time consuming.

The product-moment 'r' between two forms is found to be equal to 0.79 and the index of reliability found as suggested by Garrett (1979) is 0.88. The item validity was found and out of 20 last two items from the form 1 were discarded and remaining 18 items were included in the final attitude scale. The content validity of the scale is based upon the item selection. Items were selected on the basis of agreement among judges regarding their content
validity. Therefore, the method of construction itself ensures a sufficient degree of content validity itself that amounts to the content validity of the total scale.

3.04.08 ATTITUDE TOWARD ABILITIES INVENTORY (ATAI-E& O)

Both the SRINDP/PLD-E and SRIPLD-O inventories to know the attitudes structure of people with locomotor disabilities has the dimension of DVIII that is related to attitude toward abilities. The SISTM, which the investigator is using to change the attitude toward these variants, is based upon the Indian Model of Ability (Chandra, 2000) in which 11 abilities have been mentioned. These abilities are based upon Indian theology and being referred also in Shrimad Bhagwad Geeta.

The investigator both in English and Oriya has developed the attitude toward sites or dies of inherent abilities. The English version is appended at Appendix-7 (A) and Oriya version is appended at Appendix-7 (B). The scale value and method of scoring is same as based upon the mentioned earlier inventories developed by Bharambe (1992). This inventory consists of 15 statements and the maximum scores will be 75 and minimum 15. The least the scores in the inventory the negative attitude toward inherent abilities is apparent whereas more the score the positive ability attitude is depicted. Since this inventory is based upon sound theological concepts and well discussed amongst the rehabilitation professionals, psychologists and theological scholars the content validity seems to be inbuilt.
The intervention tool of this study incorporates information, persuasion and on-the-job performance as the part of SISTM, which is based upon the material, developed for the purpose of changing the attitude of PLD and NDP. The structured intervention strategic therapeutic material (SISTM) utilized the informative SISTM, persuasive SISTM and performance SISTM contains the following:

3.04.09 INFORMATIVE SISTM

The PLD are exposed to the following informative material based upon the variants or negative traits. These are explained in the classroom setting as well as in the individual counseling settings:

01. Concessions and Facilities for the Disabled in the State of Orissa
02. Disabled Village Children
03. Health for the millions
04. Scheme of Integrated Education for the Disabled Children: 1992
05. The Rehabilitation Council of India, 1992 [RCI Act]
06. The Persons with Disabilities [Equal Opportunities, Protection of Right and Full Participation] Act, 1995 [PWD Act]


08. The National Fund for the People with Disabilities: 1997

09. National Handicapped Finance and Development Corporation Ltd., 1997 [NHFDC]

10. The National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act, 1999


12. The Apprenticeship Act, 1961

13. PWD Operation Empowerment: 2000 of Govt. of India

14. National Council of Vocational Training

15. District Consultative Committee [SCC]

16. Monitoring Committee on the Placement of Physically Handicapped

17. Swarnajayanti Gramya Swarojgar Yojna [SGSY]

18. Swarnajayanti Sahara Rojgar Yojna [SSRY]

19. District Industries Centre [DIC]

20. Kadhi and Village Industries Commission [KVIC]

21. Notified Area Council [NAC]

22. Urban Local Bodies [ULB]

23. Vocational Rehabilitation Centre for Handicapped VRCH]

24. Special Employment Exchange for Physically Handicapped [SEExPH]

25. District Social Welfare Office [DSWO]

26. Artificial Limb Manufacturing Corporation Limited (ALIMCO)
The PLD are exposed to the following persuasive material based upon the variants or negative traits. These are explained in the classroom setting as well as in the individual counseling settings. NDP are only given exposure to Ability concept model.

01. Ability concept model—also explained to the NDP- ENG (Step:III)
02. Theological approach/concepts
03. Networking approach/concepts
04. Implementation mechanism
05. Salient features of PWD Operation Empowerment-2000
06. A step toward economic independence of the disabled: true stories
07. Do you know?
08. Quotations
09. Statements
10. Poems
11. Posters
12. The Problem in outline
13. Public Attitudes
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Living with Handicap</td>
</tr>
<tr>
<td>15</td>
<td>Parent and Child</td>
</tr>
<tr>
<td>16</td>
<td>Doctor and Parent</td>
</tr>
<tr>
<td>17</td>
<td>The family</td>
</tr>
<tr>
<td>18</td>
<td>Peer Group</td>
</tr>
<tr>
<td>19</td>
<td>Psyche</td>
</tr>
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<td>20</td>
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3.04.11 PERFORMANCE

The PLD have gone through the vocational evaluation systems in VRC workshop setting for a period of one week followed by the performance exposure training. Only three dimensions DVI, DVII and DVIII are taken in workshop setting as well as in the individual counseling settings:

AC AREA: 01 DISCIPLINE

01.01 Regularity-TO COME DAILY
01.02 Punctuality-TO COME ON TIME
01.03 Instruction-TO UNDERSTAND AND FOLLOW
01.04 Cleanliness-CLEAN HIMSELF/HERSELF AND SECTION
01.05 Appearance-PLEASANT AND SOBER

AC AREA: 02 WORK

02.01 Safety Consciousness-NO INJURY
02.02 Identification-KNOWS ALSO USE OF TOOLS
02.03 Work and Aptitude-AVERAGE ON VOCATIONAL EVALUATION SYSTEM
02.04 Training-LEARNS THE ASSIGNED WORK AT AVERAGE LEVEL
02.05 Skill Development-DEVELOPED THE SKILL AT THE ABOVE AVERAGE LEVEL
AC AREA: 03 ABILITIES

03.01 Vision-TO SEE
03.02 Hearing-TO HEAR
03.03 Speech-TO SPEAK
03.04 Eye-Hand Coordination-WELL COORDINATED
03.05 Applicability-PERCENTILE 25

3.05 [A] ADMINISTRATION OF THE TOOLS

3.05.01 STEPS: All the tools selected for the study are administered in six stages. Solomon Research Design (modified) Flow Chart (cf. Table 3.01) has six stages/steps as referred in para 3.03.06. The different sample size of cases has been given in Table 3.01 and Table 3.05 in different stages/steps. The six steps are as under:

STEP-I PRE-EXPERIMENTAL STAGE: During pre-experimental stage in which Self Report Schedule of non-disabled persons is administered on 50 non-disabled rehabilitation professionals/personnel to locate the loaded variant or trait attitude related words and further analyzed/used as negative variants and positive traits. The PLD were given Standard Progressive Matrices (SPM) and Social Intelligence Rating Scale (SIRS) along with SRINDP/PLD-E and SRIPLD-O by the investigator to form the EG.
STEP-II  PRE-TEST STAGE: The SRIPLD-O in Oriya was administered to 30 PLD as per para 3.04.05 and The SRINDP/PLD-E in English was administered to 30 NDP as per para 3.04.04. The response is analysed through scoring key given in Appendix-04 (C) and Appendix-03 (C) respectively. The variants and traits are also analyzed for further study (cf. para 4.01, para 4.02 and para 4.03, Appendix-03 and Appendix-04).

STEP-III  MANIPULATIVE-CUM-INTERVENTIONAL STAGE: The 30 EG are given SISTM and 30 ENG are given SISTM-Ability Concept Model. The details of SISTM are given in para 3.04.09, 3.04.10 and 3.04.11. Its further analysis is also presented in para 4.04 (cf. Table: 4.14 to Table: 4.17).

STEP-IV  POST-EXPERIMENTAL STAGE: SRINDP/PLD-E and SRIPLD-O are given to 60 NDP and 60 PLD (i) to know the attitude change and (ii) to compare with the PTS score of Step II (cf. Table: 4.18 to Table: 4.26).

STEP-V  FIRST ASSESSMENT STAGE (RE-TESTING STAGE): First assessment of 60 PLD are made through ATDI-O, ATWI-O and ATA1-O trio-attitudinal inventories and 60 NDP through ATDI-E, ATWI-E and ATA1-E after the gap of 90 days to see the affect of SISTM (cf. Table: 4.13).
STEP-VI  SECOND ASSESSMENT STAGE (RETENTION STAGE): The Trio-AIs is given to 60 NDP and 60 PLD to re-assess the retention of attitude change (cf. Table 4.27-B).

3.05.02 ADMINISTRATION OF SELF REPORT SCHEDULE OF PERSONS WITH LOCOMOTOR DISABILITIES (SRSPLD-E)

After the identification of 100 loaded words from the research review of literature, an SRSNDP is given to 50 non-disabled rehabilitation professionals/personnel working in TCTD, TCTVH, OLS, SMRC & VRC. The inventory is appended at Appendix-02. The instructions are given on the top of the inventory. The rehabilitation professional was advised to go through it and opine whether these words will elicit positive or negative attitude of the locomotor disabled persons. The information collected was analyzed and ranked. Those who had the mark ‘O’ or can not say or undecided had been eliminated for further statements to be included in SRINDP/PLD-E. 80 words are selected and worded in such a manner to represent 5 disabilities specific and three area specific dimensions. The statements are both positively and negatively worded statements and are intermingled to increase the difficulty level and to remove the chances of fakeness in replies. The inventory with 80 statements is appended at SRINDP/PLD-E was sent to 15 specialists in Psychology and Rehabilitation and the replies received from 12 professors of psychology. The same inventory was also given to 5 PLD graduates and their opinions also taken into account to give the final shape of self-report inventory of persons with disabilities in English. The English version of the inventory as shown in the Appendix-02 is used for the purposes.
3.05.03 ADMINISTRATION OF SELF-REPORT INVENTORY OF PERSONS WITH DISABILITIES SRINDP/PLD-E AND SRIPLD-O

The inventory available through para-3.05.02 as SRINDP/PLD-E and SRIPLD-O is given to 60 PLD and 60 non-disabled rehabilitation professionals/ personnel. Standard Progressive Matrices and Social Intelligence Rating Scale are given to PLD and who have got P-25 and SIS-25 and more Score respectively are included in the experimental group of PLDs. The SPM and SIRS are not given to Non-NDP. It was also ascertained that those PLDs who are also getting more than 5 variants in at least one dimension are included in EG of PLD.

In the process of giving the SRIPLD-O to PLDs then they are asked to go through replies for each statement at sufficient time and give positive or negative replies as double tick, single tick, cross, double cross or question mark. The PLDs give their replies on the answer sheets as given in the Appendix-04C. A scoring key is used to give the scores to the replies. Since the negative key is used, if the answer tallies as strongly disagreed was given the score 1, tallies with the reply disagreed get score 2, undecided and can not say is scored 3, single cross get score 4 and double cross get score 5. If the score is more, the positive attitude is more and gradually decrease in score also shows gradual increase in negative attitude. The scales are collected, scoring made and total score for each dimension is collected. Then the final scoring and identification of negative variant are made by eliminating the PLDs who have not been rated to get the negative variant 5 or more from the PLD group comprising EG for further study. This second step of research design is shown in Table-3.01.
After identification, measurement, assessment and evaluation of attitude pattern of PLD, the EG and ENG of the experimental group go through SISTM for a period of 90 days and then all the three inventories were given at a time to 60 PLDs and 60 NDPs. The sample cases were asked to reply as agreed, strongly agreed, undecided, disagreed, strongly disagreed, as single tick, double tick, question mark, single cross and double cross. They were asked to give the reply on the answer sheet itself and investigator scored as all the statements of the inventories are positively worded. Hence, double tick gets score 5, double cross get 1 in gradual decreasing order. Least score shows the maximum negativism whereas the gradual increase in scores shows gradual increase in positivism or positive attitude among PLDs or NDPs. This comprises the step V of research design as mentioned in para-3.01 (cf Table 3.01).

The self-report inventory of PLD Oriya version is given to PLDs whereas TRIO-AIs Oriya version and English version are given to all sample cases viz. 60 PLD and 60 NDP. The administration of this inventory in case of EG and ENG is given as re-test whereas in case of CG and NG it was initial assessment of negative and positive attitude pattern. Pre-test score of EG and ENG have been taken as the score of control group whereas attitude pattern score of CG and NG is taken for comparison purposes and to compare with the attitude scale scores of three area specific inventories. The TRIO-AIs in oriya are again given to PLD as a
part of step-VI and TRIO-AIs in English are given to NDP to see the impact of replication/retainability of the scores got at step-IV of research design.

3.05 [B] APPLICATION OF STRUCTURED INTERVENTIONAL STRUCTURED THERAPEUTIC MATERIAL [SISTM]

SISTM is an important component of manipulation-cum-intervention. Informative SISTM is given in the first month; persuasive SISTM is given in the second month and performance SISTM is given upto three months from the date of first administration of SRIPLD-E and SRIPLD-O. The informative and persuasive SISTM was given in classroom setting followed through individual counseling methods. The performance SISTM was given for a period of three months in a VRC Workshop through vocational evaluation systems followed by on-the-job work-exposure techniques in the on-the-job settings/environment. The investigator assessed the three area specific dimensions viz. Discipline, Work and Abilities. The results were also analyzed and confirmed by three attitude inventories as mentioned in para 3.04.06, para 3.04.07 and para 3.04.08.
The following statistical procedures are adopted at the time of data analysis:

a) The raw scores collected from the sample 60 PLD and 60 NDP cases through SRIPLD-O, SRINDP/PLD-E, ATDI-O&E, ATWI-O&E and ATAI-O&E and related data of SPM and SIRS in case of PLD are tabulated. Then their arithmetic means are calculated.

b) The data collected of this study is tabulated and analyzed dimension-wise, statement-wise, group-wise and SISTM-wise.

c) 'Chi-square (\( \chi^2 \)) test for goodness of fit' is applied to check the normality of each dimension and statement.

d) Its frequency distribution, frequency polygon, cumulative percentage polygon, tables and graphs are also used/developed in case of attitudinal change. Chi-square test is applied to test the attitude change of all the eight dimensions in EG and ENG.

e) The SISTM and hypotheses related numerical data is further represented graphically with the help of frequency polygon, line graph, Column graph and cumulative percentage graph.