Chapter IV
Research Methodology

The focus of this study was to assess the attainment of Basic Employability Skills among secondary students. This study also examined the effect of demographic factors on presence of basic employability skills among secondary students.

Statement of the problem
“Preparation of a valid research tool for assessing the skills of basic employability possessed by secondary school students (Std. IX and X) from Marathi Medium and Semi-English Medium Secondary Schools in Pimpri Chinchwad Area during 2012-13 and identifying the relation between the basic employability skills and demographic sociological / social variables such as Gender, Area or Locality of school, type of school and instruction medium.”

Topic of the Study
The investigator states the topic of his research thus:
“A study of implementation of the basic employability skills amongst secondary school students (Std. IX and X) from Marathi Medium Schools with reference to Pimpri Chinchwad Area (during 2012 – 13)

Research Design
Type of Research: It was an empirical research as it was based on teaching experiences (22 years) of researcher from his own coaching institute for secondary students.
Variables such as Gender of student’s, Types and Areas of school were affecting other variables. i.e. Basic Employability Skills (Reading, Motivation, etc.) These variables were identified and verified, which were measureable of interest to find the relation between them.
Nature of Research: It was applied research. The problem is skill gap was identified and defined. Efforts were undertaken by researcher to find probable solution or actions to solve the problem.
Some of the variables were qualitative (for teacher) and quantitative (for student) in nature and strictly demanded in-depth analysis of events which were based on experiences of researcher.
Hence nature of this research was mixed mode of descriptive, qualitative and quantitative in nature.

**Type of analysis:** It was qualitative and quantitative research analysis.
The variables like basic employability skills (Reading, Listening, Motivation etc.) are quantitatively analyzed and the school teacher opinions were qualitatively analyzed.

**Operational Definitions**

**Basic Employability Skills**

A) Academic Skills
   a) Reading Skills  b) Writing Skills  c) Listening Skills

B) Thinking Skills
   High Order Thinking Skills (Analysis, Creativity, Evaluation)

C) Personal Qualities
   a) Ethics and Values
   b) Motivation
   c) Entrepreneurial Skills
   d) Self-Confidence

**Secondary School Students (Std. IX and X)**

Standard IX and X

These are the classes in the secondary stage of school education ranging from Standard I and to Standard X. At the end of Standard X, the students will take final examination.

Operationally it means the students of Standards IX & X in the academic year 2012 – 13 from corporation and private marathi medium school in Pimpri-Chinchwad area.
**Pimpri Chinchwad**

It is a part of Pune district in state of Maharashtra. It consists of Urban, Semi urban and Rural area. Pimpri-Chinchwad Municipal Corporation Area consist total 22 villages. The details are as follows:

<table>
<thead>
<tr>
<th>Name of Village</th>
<th>Type of Village (Urban/Semi Urban/Rural)</th>
<th>Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimpri, Chinchwad, Nigdi,</td>
<td>Urban</td>
<td>8</td>
</tr>
<tr>
<td>Akurdi, Kasarwadi, Sangvi,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalewadi, Dapodi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rahatani, Tathawade, Talawade,</td>
<td>Semi-Urban</td>
<td>6</td>
</tr>
<tr>
<td>Pimpale-Nilakh, Pimpale-Saudagar,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pimpale-Gurav</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moshi, Ravet, Punawale, Chikhali,</td>
<td>Rural</td>
<td>8</td>
</tr>
<tr>
<td>Wakad, Bhosari, Thergaon,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talegaon-Dhabhade</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
<td></td>
</tr>
</tbody>
</table>

Geographical Map for Pimpri Chinchwad Municipal Corporation is enclosed (Annexure)

**Method of Investigation**

As the area of researcher and the population of the study are vast the researcher has chosen the survey method for this study.
**Objectives**

1) To find the attainment level of basic employability skills in secondary school students.

2) To study the effect of demographic factors (Gender, Locality and Type of schools and Medium of Instruction) on basic employability skills.

3) To study the role of school teachers in teaching basic employability skills in secondary schools.

**Hypothesis**

H-1) Secondary School Students (Std. IX and X) from Marathi and Semi-English Medium Schools possess moderate level of basic employability skills (BES)

H-2) There is no difference between secondary school students (Std. IX and X) from Marathi and Semi-English Medium Schools (boys and girls) on basic employability skills (BES). (Gender of students)

H-3) There is no difference between secondary school students (Std. IX and X) from Marathi and Semi-English Medium Schools from Urban, Semi-urban and Rural areas on basic employability skills (BES) (Area of School)

H-4) Marathi Medium Secondary School Students (Std. IX and X) from Private Marathi Medium Schools and from Pimpri-Chinchwad Corporation Schools have same attainment level of basic employability skills. (Type of Schools)

H-5) There is no difference between students from Semi-English Medium Schools and Marathi Medium Schools on basic employability skills (BES) (Medium of instruction)
Population and sampling (For schools and students)

**Sample size determination**: In consultation with the guide, experts in educational and management field and earlier studies. The sample size for secondary schools, teachers and students was decided. It was based on principles of stratification and proportion. The sample size for schools was based on stratified sampling since school was not a homogenous group. The population i.e. total schools was stratified based on strata like area of schools, types of school. The sample size of students was based on simple random sampling on selection by school authority.

**Sampling procedure**: The proportional and incidental sampling techniques have been implemented to decide the sample. The students i.e. samples were selected as instructed by the respective school authority.

**i) For schools**

**Population**

All 99 secondary Marathi Medium Schools from Pimpri-Chinchwad Corporation Area

The population of the present study consists of all secondary schools of Standard IX and X from 16 Pimpri Chinchwad Corporation Schools and 83 Private granted and non-granted Marathi Medium Secondary Schools in Pimpri Chinchwad Area.

<table>
<thead>
<tr>
<th>Pimpri Chinchwad Area</th>
<th>Total Schools</th>
<th>Schools selected for survey</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimpri Chinchwad Municipal Corporation Schools (PCMC Schools)</td>
<td>16</td>
<td>7</td>
<td>44 %</td>
</tr>
<tr>
<td>Private Marathi Medium Secondary Schools (Granted / Non-granted)</td>
<td>83</td>
<td>8</td>
<td>10 %</td>
</tr>
<tr>
<td></td>
<td>99</td>
<td>15</td>
<td>15 %</td>
</tr>
</tbody>
</table>
Sampling and basis of selection of 15 schools.

Justification of selection of 15 schools
Pimpri-chinchwad municipal corporation area is politically divided into wards. e.g. Bhosari, Nigdi, Pimpri, Akurdi, Chinchwad. Researcher intended to cover sample representation from each ward consisting some specific backgrounds. Hence the 15 schools out of 99 schools were stratified on the basis of backgrounds like Gender of students (Boys and Girls), Area of School (Urban, Semi-Urban and Rural), Type of school (Corporation and Private) and Medium of instructions (Semi-English and Marathi Medium).

For student

Population of students (IX and X Std.) from 15 schools
All secondary students (4176 No.) from 15 schools

<table>
<thead>
<tr>
<th></th>
<th>Total Population (IX and X Std.)</th>
<th>Sample selection</th>
<th>Sampling %</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th Std.</td>
<td>1929</td>
<td>442</td>
<td>-</td>
</tr>
<tr>
<td>9th Std.</td>
<td>2247</td>
<td>425</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>4176</td>
<td>867</td>
<td>20.76 %</td>
</tr>
</tbody>
</table>

Sampling and basis of selection of students
Total samples of students are 867 No.
After fixing 15 schools, average 25 - 30 secondary students, from Std. IX and X from each school were randomly chosen to form the sample of the study.
Sampling % for students : 20.76 %
**Table IV(b)**

List of Schools Selected for Survey

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of School</th>
<th>Date of Survey</th>
<th>Area</th>
<th>No. of Samples Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IX Std.</td>
</tr>
<tr>
<td>1</td>
<td>JPNV (Gharkul)</td>
<td>23/11/2012 and</td>
<td>Nigdi-Pradhikaran</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26/11/2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bhairavnath School</td>
<td>03/12/2012 and</td>
<td>Bhosari</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>04/12/2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PCMC, Landewadi</td>
<td>03/12/2012 and</td>
<td>Bhosari</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>04/12/2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>PCMC, Thergaon</td>
<td>05/12/2012 and</td>
<td>Thergaon</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>06/12/2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>PCMC, Wakad</td>
<td>5/12/2012 and</td>
<td>Wakad</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6/12/2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>PCMC, Pimpale Gurav</td>
<td>07/12/2012</td>
<td>Pimpale-Gurav</td>
<td>31</td>
</tr>
<tr>
<td>7</td>
<td>PCMC, Pimpale Saudagar</td>
<td>08/12/2012 and</td>
<td>Pimpale-Saudagar</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11/12/2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>PCMC, Pimpri Nagar</td>
<td>11/12/2012</td>
<td>Pimpri</td>
<td>28</td>
</tr>
<tr>
<td>9</td>
<td>Bhoir School</td>
<td>12/12/2012</td>
<td>Akurdi</td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>PCMC, Sant Tukaram Nagar</td>
<td>12/12/2012</td>
<td>Sant Tukaram Nagar</td>
<td>30</td>
</tr>
<tr>
<td>11</td>
<td>New English School</td>
<td>12/12/2012</td>
<td>Chinchwad</td>
<td>33</td>
</tr>
<tr>
<td>12</td>
<td>Barane School</td>
<td>13/12/2012</td>
<td>Dange Chowk</td>
<td>31</td>
</tr>
<tr>
<td>13</td>
<td>Chapekkar School</td>
<td>13/12/2012</td>
<td>Chinchwadgaon</td>
<td>26</td>
</tr>
<tr>
<td>14</td>
<td>New English School</td>
<td>13/12/2012</td>
<td>Bijali Nagar</td>
<td>32</td>
</tr>
<tr>
<td>15</td>
<td>JPNV (Gurukul)</td>
<td>14/12/2012</td>
<td>Nigdi</td>
<td>26</td>
</tr>
</tbody>
</table>

**PCMC :** Pimpri Chinchwad Corporation Secondary School

**JPNV :** Dyan Prabodhini School, Nigdi

**Total :** 867
### Table IV(c)

**Gender Wise Distribution of the Samples**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. X</td>
<td>Std. IX</td>
<td>Std. X</td>
</tr>
<tr>
<td>Population</td>
<td>981</td>
<td>1209</td>
<td>948</td>
</tr>
<tr>
<td>Sample Drawn</td>
<td>217</td>
<td>207</td>
<td>225</td>
</tr>
<tr>
<td>Percentage of Population</td>
<td>22.12</td>
<td>17.12</td>
<td>23.73</td>
</tr>
</tbody>
</table>

### Table IV(d)

**Area Wise Distribution of the Samples**

<table>
<thead>
<tr>
<th>Area / Locality</th>
<th>No. of Schools</th>
<th>Population</th>
<th>Samples Drawn</th>
<th>Percentage of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Std. X</td>
<td>Std. IX</td>
<td>Std. X</td>
</tr>
<tr>
<td>Urban</td>
<td>7</td>
<td>539</td>
<td>635</td>
<td>200</td>
</tr>
<tr>
<td>Semi-Urban</td>
<td>4</td>
<td>556</td>
<td>621</td>
<td>122</td>
</tr>
<tr>
<td>Rural</td>
<td>4</td>
<td>834</td>
<td>991</td>
<td>120</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>1929</td>
<td>2247</td>
<td>442</td>
</tr>
</tbody>
</table>

| 4176 | 867 |
Table IV(e)
Distribution of the Samples with Respect to School Type

<table>
<thead>
<tr>
<th>Type of Schools</th>
<th>Population</th>
<th>Samples Drawn</th>
<th>Percentage of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. X</td>
<td>Std. IX</td>
<td>Std. X</td>
</tr>
<tr>
<td>Corporation Schools</td>
<td>1011</td>
<td>1203</td>
<td>208</td>
</tr>
<tr>
<td>Private Schools</td>
<td>918</td>
<td>1044</td>
<td>234</td>
</tr>
<tr>
<td>Total</td>
<td>4176</td>
<td>867</td>
<td></td>
</tr>
</tbody>
</table>

Table IV(f)
Medium of Instruction Wise Distribution of the Samples

<table>
<thead>
<tr>
<th>Medium of Instruction</th>
<th>Population</th>
<th>Samples Drawn</th>
<th>Percentage of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. X</td>
<td>Std. IX</td>
<td>Std. X</td>
</tr>
<tr>
<td>Semi-English Medium</td>
<td>1152</td>
<td>1333</td>
<td>152</td>
</tr>
<tr>
<td>Marathi Medium</td>
<td>777</td>
<td>914</td>
<td>290</td>
</tr>
<tr>
<td>Total</td>
<td>1929</td>
<td>2247</td>
<td>442</td>
</tr>
<tr>
<td></td>
<td>4176</td>
<td>867</td>
<td></td>
</tr>
</tbody>
</table>

Collection of Primary data

Collection of primary data and questionnaire
By using three types questionnaire (structured, closed and descriptive), the primary data was collected from 15 selected schools

- The special class room sessions were conducted under supervision of respective school teachers

Questionnaire was made by taking account of level of perception and understanding of secondary students (IX and X Std.) by framing questions in three levels (Low, Moderate, Higher)
1) The primary data was collected from 15 selected secondary school.
2) A pilot study was conducted for testing questionnaire. The results were satisfactory.
3) For collection of primary data, structural close type questionnaire was made.
4) Special class room sessions were conducted in 15 schools to collect data under supervision of respective school teachers.

Rational for making range of score.

1) Ethics and Values

a) The minimum score as 10 and maximum score as 40 were identified.

b) To identify lower level of score

The 35 % cut off score was treated as the low level.

\[ \therefore \text{ For } 100 \rightarrow 35 \quad \therefore \frac{100}{40} = \frac{35}{x} \]

\[ 40 \rightarrow x \quad \therefore x = \frac{35 \times 40}{100} = 14 \]

\[ \therefore x = 14 \]

\[ \therefore 14 \text{ is cut off score (higher value) for lower grade.} \]

\[ \therefore \text{ The range of lower level is } 10 – 14 \]

c) To identify higher level of score

The 75 % cut off score was treated as the high level.

\[ \therefore \text{ For } 100 \rightarrow 75 \quad \therefore \frac{100}{40} = \frac{75}{y} \]

\[ 40 \rightarrow y \quad \therefore y = \frac{75 \times 40}{100} = 14 \]

\[ \therefore y = 30 \]

\[ \therefore 30 \text{ is cut off score (lower value) for higher grade.} \]

\[ \therefore \text{ The range of higher level is } 30 – 40 \]

d) Moderate level of score

The scores between low and high score are treated as moderate score.

\[ \therefore \text{ Moderate level is } 15 – 29 \]
2) **Motivation**

a) The minimum score as 10 and maximum score as 30 were identified.

b) To identify lower level of score

\[
\begin{align*}
\therefore \text{For } 100 &\rightarrow 35 \\
\therefore \frac{100}{30} &= \frac{35}{x} \\
30 &\rightarrow x \\
\therefore x &= \frac{35 \times 30}{100} = 10.5 \\
\therefore x &= 11
\end{align*}
\]

\[
\therefore \text{The range of lower level is } 10 - 11
\]

c) To higher level of score

\[
\begin{align*}
\therefore \text{For } 100 &\rightarrow 75 \\
\therefore \frac{100}{30} &= \frac{75}{y} \\
30 &\rightarrow y \\
\therefore y &= \frac{30 \times 75}{100} = \frac{2250}{100} \\
\therefore y &= 22.50
\end{align*}
\]

\[
\therefore \text{The range higher level is } 23 - 30
\]

d) Moderate level of score

\[
\therefore \text{Moderate level is } 12 - 22
\]
3) Entrepreneurial Skills

a) Minimum score = 37

Maximum score = 148

b) Lower level of score

\[ \therefore 100 \rightarrow 35 \]
\[ \therefore \frac{100}{148} = \frac{35}{x} \]
\[ 148 \rightarrow x \]
\[ \therefore x = \frac{148 \times 35}{100} = 51.80 = 52 \]
\[ \therefore \text{The lower level is } 37 \rightarrow 52 \]

c) Higher level of score

\[ \therefore 100 \rightarrow 75 \]
\[ \therefore \frac{100}{148} = \frac{75}{y} \]
\[ 148 \rightarrow y \]
\[ \therefore y = \frac{148 \times 75}{100} = \frac{111}{100} \]
\[ \therefore \text{The higher level is } 111 \rightarrow 148 \]

d) Moderate level of score

\[ \therefore \text{Moderate level is } 53 \rightarrow 110 \]
4) Self-confidence

a) Minimum score = 10
   Maximum score = 20

b) Lower level of score
   \[ \text{\textbf{:. The lower level is 0 – 7}} \]

c) Higher level of score
   \[ \text{\textbf{:. The higher level is 8 – 14}} \]

d) Moderate level of score
   \[ \text{\textbf{:. Moderate level is 15 – 20}} \]
Summary Table

Table IV(g)

Based on Total Scores, Levels are assigned

<table>
<thead>
<tr>
<th>Marks Score</th>
<th>Ethics and Values</th>
<th>Motivation</th>
<th>Entrepreneurial Skills</th>
<th>Self-confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>10 – 20</td>
<td>10 – 16</td>
<td>37 – 74</td>
<td>10 – 13</td>
</tr>
<tr>
<td>Moderate</td>
<td>21 – 30</td>
<td>17 – 23</td>
<td>75 – 110</td>
<td>14 – 17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Levels</th>
<th>Ethics and Values</th>
<th>Motivation</th>
<th>Entrepreneurial Skills</th>
<th>Self-confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>10 – 14</td>
<td>10 – 11</td>
<td>37 – 52</td>
<td>0 – 7</td>
</tr>
<tr>
<td>Moderate</td>
<td>15 – 29</td>
<td>12 – 22</td>
<td>53 – 110</td>
<td>8 – 14</td>
</tr>
</tbody>
</table>

Research Tools

The investigator constructed research tools with the help of his research guide and experts. The details of the research tools are given below (Refer Table V (h))

Table IV (h)

Tools for testing basic employability skills

<table>
<thead>
<tr>
<th>Skills</th>
<th>Pattern of Questions</th>
<th>Duration for Testing</th>
<th>No.of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Reading Skills</td>
<td>Descriptive</td>
<td>20 min.</td>
<td>2</td>
</tr>
<tr>
<td>2) Writing Skills</td>
<td>Descriptive</td>
<td>25 min.</td>
<td>2</td>
</tr>
<tr>
<td>3) Listening Skills</td>
<td>Descriptive</td>
<td>10 min.</td>
<td>2</td>
</tr>
<tr>
<td>4) High Order Thinking Skills</td>
<td>Making Preference</td>
<td>35 min.</td>
<td>20</td>
</tr>
<tr>
<td>5) Ethics and Values, Motivation, Self Confidence</td>
<td>Making Preference</td>
<td>12 min. each</td>
<td>10 Q. each</td>
</tr>
<tr>
<td>6) Entrepreneurial Skills</td>
<td>Making Preference</td>
<td>25 min.</td>
<td>37</td>
</tr>
</tbody>
</table>

All tools were specially constructed for this study. Reliability and validity for all tools have been checked.
Detailed Analysis (Question wise)

I) Academic Skills
The following assessment functions for Reading, Writing and Listening skills were framed and applied.

a) For reading skills
Two descriptive questions were framed. The power of skimming, scanning and understanding the concept and grammar, comprehension ability etc. were tested.

b) For writing skills
Two descriptive questions were framed. The power of expression, how to extract information and present in a diagrammatic form, understanding of content etc. were tested.

c) For listening skills
The power of understanding of words, sentences and phrases and to write them correctly etc.

Illustration (For reading skills)
The measured value of mean for reading skills was 5.9370 which were lying between 5 – 7, hence the attainment level of reading skill was moderate.

II) High order thinking skills (HOT skills)
To assess the analytical ability, evaluation capacity and creativity, a questionnaire was framed and applied.

For Higher Order Thinking Skills

Total Questions were asked = 20 Questions
Total Marks = 20 marks (20 Q x 1)

Level of Attainment (Score)

<table>
<thead>
<tr>
<th>Low Level</th>
<th>Moderate Level</th>
<th>High Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 6</td>
<td>7 – 13</td>
<td>14 – 20</td>
</tr>
</tbody>
</table>

Since the mean values of HOT Skills was 8.544 which was lying between 7 – 13. The result was moderate level.

III) Entrepreneurial skills
The concept of entrepreneurial skills includes proficiencies live creativity, planning, decision making, leadership, negotiation skills, imitativeness, team work, confidence, marketing, social attitude etc.

By framing 37 questions, researcher tried to assess most of the proficiencies of entrepreneurial skills present in secondary students.

Some examples
### Questionnaire for Entrepreneurial skills

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Q. No.</th>
<th>To Test Proficiency for Entrepreneurial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Q. 4</td>
<td>Confidence</td>
</tr>
<tr>
<td>2</td>
<td>Q. 6</td>
<td>Initiativeness</td>
</tr>
<tr>
<td>3</td>
<td>Q. 19</td>
<td>Social Attitude</td>
</tr>
<tr>
<td>4</td>
<td>Q. 36</td>
<td>Negotiation Skills</td>
</tr>
</tbody>
</table>

**For Entrepreneurial Skills**

Total Questions = 37 Questions  
Total Marks = 148 marks (37 Q x 4)  
Minimum Score = 37  
Maximum Score = 148  
Lower Level of Attainment

For $100 \rightarrow 35$  
$\therefore \frac{100}{148} = \frac{35}{x}$  
$\therefore x = 51.80$

$148 \rightarrow x$  
$\therefore x = 52$

$\therefore$ **Lower Level is 37 – 52**

Higher Level of Attainment

For $100 \rightarrow 75$  
$\therefore \frac{100}{148} = \frac{75}{y}$  
$\therefore y = 111.00$

$148 \rightarrow y$  
$\therefore y = 111$

$\therefore$ **Higher Level is 111 – 148**

**Moderate Level of attainment 53 - 110**

Since the mean values of entrepreneurial skills was 106.4233 which was lying between 53 – 110, the level of attainment for entrepreneurial skills was moderate.

Similarly for all other remaining skills, the result was moderate level.

**IV) For other skills**

To assess the level of attainment of Ethics and Values, Self motivation and Self confidence, similar procedure was adopted. The results was moderate level of attainment.

**Rational of the Tool**

By reviewing the literature, considering the SCANS report, discussing with experts from education and management field and guide, the researcher had decided to focus on basic employability skills for his research
For academic and thinking skills

- Due to non-availability of standardized tools researcher had prepared his own research tools with the help of experts.
- It was based on curriculum of Std. IX and X std of SSC board of Maharashtra (English, Geometry, Algebra, Science subjects)

For personal skills and qualities.

- For ethics and values, motivation, Entrepreneurial skills and self confidence, Standardized tools were used.

Reliability

The items for testing academic and higher order thinking skills have been adapted from curriculum and text books published by SSC Board of Maharashtra. After confirmation from experts, the items were finalised.

The tests on personal skills and qualities were administered to pilot sample of 97 students. Cronbach Alpha reliability coefficient was computed. The result was satisfactory.

Validity

Item of testing all skills were shown to experts from management and psychology. The results was valid.

Pilot Study

A pilot survey for 96 students was conducted. It was use for testing validity and reliability of questionnaire prepared. The results were satisfactory.

Construction of Tools

I) For Academic Skills

For framing questionnaire and test for academic skills the teachers manual for English Subject (Marathi Medium Std. X) published by Maharashtra State Board was considered as a resource.

Reading Skills

Two unseen extracts or paragraphs (5 marks each - total 10 marks) were selected from comprehension exercise book based on curriculum of Std. IX and X Std. of SSC Board of Maharashtra. In each passage, out of three, two factual question (3 marks) were asked for which answers could be easily found or located from text. One word, one phrase answers were admissible. Third questions was based on personal response for which answers would be related student's own ideas and interests in relation to the topic or to the authors point of view. The assessment functions were testing of skimming and scanning, understanding the grammar, concept etc.
Writing Skills

Two sub questions, A report writing and a information transfer skills carrying 5 marks each total 10 marks were taken from writing skills exercise book based on IX and X std. syllabus.

In a report writing skill question, students were asked to prepare a report based on the events with help of given points: In a information transfer question (from Non-verbal to verbal) the students were asked to write a paragraph on information presented in simple diagram. The assessment factors were: to test power of expression, how to extract information and present in a diagrammatic form, how to describe people, events, places, interpretation skills, understanding of content, vocabulary range, background knowledge etc.

Listening Skills

Two types of tasks: Listening and writing words and sentences, were conducted which were carrying 3 marks each. In these tasks the investigator was reading five words and five sentences twice loudly and the students were asked to write any three words and sentences from it on answer sheet in 10 minutes.

In, this test, the ability to listen with understanding of words, phrases, short sentences and to write it correctly were tested.

II) For High order Thinking Skills

To assess the analytical ability, evaluation capacity and creativity, a questionnaire / test consisting 20 multiple choice questions for 20 marks was framed and conducted. It was based on IX and X Std. Science, Algebra and Geometry Syllabus. The main criteria for assessing was to test the ability of synthesis, generalization, explanation, interpretation, manipulation and understanding the concepts etc.

Sample Questions:

Q.1 – In polluted cities, it may harmful to get wet in first shower, during monsoon because first shower ......

   a) may develop cold in body          b) may develop fever
   c) may consist acid rain             d) none of these

Q.2 – Amar is travelling by his car with uniform velocity in the same direction. What will be the acceleration of his car.

   a) positive                           b) negative
   c) zero                               d) none of these
III) For Ethics and Values, Motivation, Entrepreneurial Skills, Self confidence

Taking into consideration the psychological aspects of secondary school children the researcher decided to construct the tools measuring ethics-values, motivation, entrepreneurship skills and self-confidence. The available tests measuring motivation and self-confidence were too lengthy and time consuming for the respondents. Hence a few relevant statements from already standardized tests on motivation (Mukherjee, 2000) and self-confidence (Basavanna, 1975) were adopted. The investigator reviewed the existing literature on ethics-values as well as on entrepreneurship skills. The items were constructed in simple English and translated to Marathi.

Items were given for content validation to the experts from psychology and management faculty. The judgments of the experts and basic quantitative analysis (such as reliability, Mean, Variability, etc.) on pilot sample gave favourable results regarding the usage of tools. For each of the given statement/ question the respondent needs to select one of the option which best suits him/her. High scores indicate more presence of the measured ability / skills. To measure academic achievement, the grades of earlier year's final examination were considered.

Procedure

The authority of a few Marathi Medium Schools from Pimpri-Chinchwad area was contacted. The concerned people were briefed about the survey and its purpose. Confidentiality of scores was assured. Assurance was also given that the students were to be contacted only to know about the abilities/skills they possess and the investigator would not interfere in any of school administrative part. The permission for data collection was thus taken from the school's authority before data collection. The Class IX and X students were randomly selected from these schools. The purpose of the study was explained to them. The participants found the research interesting and they volunteered for this project. The tests were administered in accuracy and with proper care. Instructions were given ensuring the participants have understood what they were supposed to do. Doubts were cleared. The investigator personally collected the data and saw that the respondents have answered the questionnaire completely. The data was then given for statistical analysis.
**Data Collection**

Respondents were selected at random. The investigator prepared a data form to collect the information from the school. (Copy enclosed) (School Information Form)

All the tests were administered on all 867 subjects. The tools were administered with the previous permission from the heads of schools. (Refer a copy of permission letter) (enclosed)

The teachers in the respective schools helped the investigator in the contacting the subjects (students), giving instructions to them etc. The investigator administered the tools personally in the class rooms.

It took nearly one hour and 40 minutes to answer all the items in the Test of Academic and High Order Thinking Skills and it took another one hour and 15 minutes to answer all the items in the test of Ethics and Values, Motivation, Entrepreneurial Skills and Self-Confidence.

Since the researcher contacted the respondents in respective classroom under supervision of school teacher, all of them had responded properly. The responses were scored and the data were organized in tabular form for analysis.

**Justification of selection of 99 schools**

The 99 schools were stratified the basis of demographic strata like gender of students (boys / girls), Area of schools (Urban, Semi-urban, Rural), Type of schools (Corporations, Private granted schools) and Medium of schools (Semi-English, Marathi medium). The researcher intended to find the impact of socio-economical factors on attainment of basic employability skills.

**Justification of selection of 15 schools**

Pimpri-chinchwad municipal corporation area is politically divided into wards. E.g. Bhosari, Nigdi, Pimpri, Akurdi, Chinchwad. Researcher intended to cover sample representation from each ward consisting some specific backgrounds. Hence the15 schools out of 99 schools were stratified on the basis of backgrounds like Gender of students (Boys and Girls), Area of School (Urban, Semi-Urban and Rural), Type of school (Corporation and Private) and Medium of instructions (Semi-English and Marathi Medium).

After selecting 15 schools, out of total 4176 students (IX and X Std.) 867 students were randomly chosen to form the sample of study. In the present study, sample was selected on the basis of randomly purposive sampling technique.
Statistical Analysis

In the present study following statistical analysis are implemented.

1) Descriptive Statistics

The data obtained from surveys or from any research approaches are the raw data. The responses given by the individuals are more important to be understood. The organizing, summarizing and presenting the data is called descriptive statistics. Descriptive statistics are used to describe the basic features of the data in a study. Mean and standard deviations or standard error are good indicators of descriptive. In the present study first hypothesis (H-1) is tested on Mean Scores.

2) Test of Normality

As the scores are not normally distributed in this study, the non-parametric tests have been used.

Mann Whitney U test is very useful for non-parametric alternative to the t test. It is used for assessing the difference between two independent samples especially in the circumstances when the assumption of normality which is required for applying the t test is not met. Kruskal Wallis test in non parametric alternative to one way ANOVA for assessing the difference between more than two independent samples.

3) Mann Whitney U Test

Mann Whitney U Test is used when two different groups of participants are compared on the given measures. Mann Whitney U Test is used when the data is not normally distributed or the variances of the two groups are markedly different. The logic behind the Mann Whitney U Test is to rank the data for each measure and then see how different the two ranks totals are Mann Whitney U Test reflects the difference between the two rank totals. In the present study, Mann Whitney U Test has been used to examine differences between the groups as follows:

a) Gender difference on measured variables (H-2)

b) Difference between Marathi Medium Students and students from Semi English Medium on the measured variables. (H-5)

c) Differences between students from private schools and students from corporation schools on measured variables. (H-4)

Mann Whitney U Test was used because the data of present research is not normally distributed.
4) **Kruskal Walls H Test**

Kruskal Walls H Test is used when more than two groups of participants are to be compared on the given measures. Kruskal Walls H Test is used when the data is not normally distributed. In Kruskal Walls the groups are compared with the ranks given to them. The mean rank indicates whether there are more high ranks in one group than in the other. The chi square for the Kruskal Walls indicates whether the difference between the groups is statistically significant or not. In the present study, Kruskal Walls H Test has been used to compare responses of students from urban areas, students from suburban areas and students from rural areas on the measured variables. Since the data of present research is not normally distributed the researcher selected Kruskal Walls H Test for comparison between study groups made on basis of the area of their schools.

5) **Cronbach Alpha Reliability Analysis**

Cronbach Alpha Reliability Analysis is based on the consistency of responses to all items in the tests. The more homogenous the domain, higher will be the internal consistency of the measuring tool. In the present research Cronbach Alpha coefficient has been computed to examine the reliability of following tools.

a) Internal consistency of statements measuring ethics and values.

b) Internal consistency of statements measuring motivation.

c) Entrepreneurship skills

d) Self confidence

Cronbach Alpha Reliability Analysis was done even for the pilot sample of the measuring tools, namely, ethics and values, motivation, entrepreneurship skills as well as self confidence.
Table IV(i) : Table showing no. of items, range of scores and reliability coefficient of the tools. Cronbach’s alpha standardized value

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. of Statements / Questions</th>
<th>Range of Scores</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethics-values</td>
<td>10</td>
<td>10 – 20</td>
<td>0.82</td>
</tr>
<tr>
<td>Motivation</td>
<td>10</td>
<td>10 – 30</td>
<td>0.84</td>
</tr>
<tr>
<td>Entrepreneurship Skills</td>
<td>37</td>
<td>37 – 148</td>
<td>0.88</td>
</tr>
<tr>
<td>Self confidence</td>
<td>10</td>
<td>10 – 20</td>
<td>0.79</td>
</tr>
</tbody>
</table>

The Cronbach’s alpha value for overall scale is 0.82, 0.84, 0.88 and 0.79 resp. The Cronbach’s alpha value for based on standardized items is 0.7.

Limitation

The Pimpri Chinchwad city is the industrial city. The Pimpri Chinchwad Corporation is one of the Richest Municipal Corporation in India. The parents are economically better and socially advanced. The presence of Basic Employability Skills may be influenced by demographic socio-economical factors.

Therefore, the results derived from the study may not be applicable to the subjects (students) of other states and districts who are likely to differ in background.

Thus the study cannot present all the factors influencing the presence of Basic Employability Skills.

Teachers Survey

Researcher intended to assess the perception of secondary school teachers about teaching of basic employability skills among secondary school students.

Table IV (j) No. of Teachers Selected for Survey (Samples)

<table>
<thead>
<tr>
<th></th>
<th>Pimpri-Chinchwad Corporation School (PCMC School)</th>
<th>Private Marathi Medium Schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Schools Selected for Research</td>
<td>7</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>No. of Secondary School Teachers Selected for Survey</td>
<td>31</td>
<td>36</td>
<td>67</td>
</tr>
</tbody>
</table>
In the first section multiple type questionnaire contains 10 questions pertaining to the various aspects of overall development of school students (like thinking skills, knowledge about management science etc.) Percentage analysis was conducted for it.

In second section of survey personal views of teachers regarding overall development of school students were collected and assessed.

**Objectives for Teachers Survey**

1) To study the perception of secondary school teachers towards basic employability skills development among secondary students.

2) To compare the perception of secondary school teachers from corporation and private Marathi medium secondary schools towards employability skill development.

**Sample for Teachers Survey**

This survey was conducted in 15 schools (7 → Pimpri-Chinchwad Corporation Schools and 8 → Private Marathi Medium Secondary School in Pimpri-Chinchwad). For this study 67 in-service secondary school teachers were part of sample. Purposive sampling technique was used for the selection of sample. Teachers were selected from both kind of school i.e. Pimpri-Chinchwad Municipal Corporation School (Total 31 No. of Teacher) and Private Marathi Medium Secondary Schools (Total 36 Nos. of teachers). Only consideration was that teachers should have teaching experience minimum 5 years in secondary schools.

**Tools used for Teachers Survey**

The multiple type questionnaire contains 10 questions pertaining to the various aspects of overall development of students.

The first section consisted questions related to relation between student and teacher, personality development subject, higher order thinking skills, career orientated, knowledge about management science. The second section of questionnaire was dealing with personal views of teachers regarding overall development of student.

**Procedure of Data Collection for Teachers Survey**

The tool was handed over to the secondary school teachers of different schools as per the sample selected. They were given a two hours time to fill up the entire questionnaire. The researcher had given the every possible help to teachers regarding the filling up the questionnaire. The entire data was collected in a month’s time : While collecting the questionnaire it was ensured that all the items were filled up as per the directions given in the questionnaire.
Analysis of Data for Teachers Survey

The results of questionnaire were analyzed through percentage only and are represented in the following Table

Table IV (k)

<table>
<thead>
<tr>
<th>No. of Years of teaching profession</th>
<th>Responses No. of Teachers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) 1 – 5 years</td>
<td>10</td>
<td>15 %</td>
</tr>
<tr>
<td>b) 6 – 10 years</td>
<td>8</td>
<td>12 %</td>
</tr>
<tr>
<td>c) 11 – 15 years</td>
<td>9</td>
<td>14 %</td>
</tr>
<tr>
<td>d) 15 – 20 years</td>
<td>15</td>
<td>22 %</td>
</tr>
<tr>
<td>e) 21 – 25 years</td>
<td>14</td>
<td>20 %</td>
</tr>
<tr>
<td>f) 26 – 30 years</td>
<td>11</td>
<td>17 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67</td>
</tr>
</tbody>
</table>

Table IV (l)

Results of First Section (Teachers Survey)

<table>
<thead>
<tr>
<th>Option No.</th>
<th>Q.1</th>
<th>Q.2</th>
<th>Q.3</th>
<th>Q.4</th>
<th>Q.5</th>
<th>Q.6</th>
<th>Q.7</th>
<th>Q.8</th>
<th>Q.9</th>
<th>Q.10</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>44</td>
<td>63</td>
<td>5</td>
<td>8</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>3 %</td>
<td>10 %</td>
<td>9 %</td>
<td>9 %</td>
<td>66 %</td>
<td>94 %</td>
<td>7.5 %</td>
<td>12 %</td>
<td>25 %</td>
<td>45 %</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>26</td>
<td>2</td>
<td>2</td>
<td>23</td>
<td>1</td>
<td>47</td>
<td>10</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>20 %</td>
<td>40 %</td>
<td>3 %</td>
<td>3 %</td>
<td>34 %</td>
<td>1.5 %</td>
<td>70 %</td>
<td>15 %</td>
<td>9 %</td>
<td>4 %</td>
</tr>
<tr>
<td>C</td>
<td>50</td>
<td>27</td>
<td>57</td>
<td>57</td>
<td>-</td>
<td>1</td>
<td>5</td>
<td>28</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>75 %</td>
<td>40 %</td>
<td>85 %</td>
<td>85 %</td>
<td>-</td>
<td>1.5 %</td>
<td>7.5 %</td>
<td>27 %</td>
<td>18 %</td>
<td>25 %</td>
</tr>
<tr>
<td>D</td>
<td>-</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>10</td>
<td>18</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>10 %</td>
<td>1.5 %</td>
<td>1.5 %</td>
<td>-</td>
<td>1.5 %</td>
<td>15 %</td>
<td>27 %</td>
<td>34 %</td>
<td>20.5 %</td>
</tr>
<tr>
<td>Not Answer</td>
<td>-</td>
<td>-</td>
<td>1.5 %</td>
<td>1.5 %</td>
<td>-</td>
<td>1.5 %</td>
<td>-</td>
<td>3</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>1.5 %</td>
<td>1.5 %</td>
<td>-</td>
<td>1.5 %</td>
<td>-</td>
<td>4 %</td>
<td>14 %</td>
<td>7.5 %</td>
</tr>
<tr>
<td></td>
<td>67</td>
<td>67</td>
<td>67</td>
<td>67</td>
<td>67</td>
<td>67</td>
<td>67</td>
<td>67</td>
<td>67</td>
<td>67</td>
</tr>
</tbody>
</table>
Findings for Teachers Survey

1) Only 18% teachers are aware about higher order thinking skills.
2) Only 25% teacher are able to explain 4 p’s of marketing.
3) About 66% teachers reported that they are teaching the subject personality development subjects to 9th and 10th Std.
4) Only 7.5% teachers reported that acquiring employability skills is the most important for students for his/her future successful career.
5) 94% teachers agreed that there is co-relation between study skills and personality development skills.
6) 60% teachers are having teaching experience more than 15 years.
7) It was observed that, there was less percentage of secondary school teachers under survey who participated in various innovative projects.

Recommendations from Teacher’s Survey

School teachers need orientation as well as training to teach and develop basic employability skills among secondary school students.
There should be collaboration between school management and teachers training college to initiate the process of teaching of Basic Employ ability Skills. The wide gap of understanding between teachers and students must be reduced.