Chapter – III

METHOD AND PROCEDURE

3.1 Method of the Present Study 72
3.2 Population of the Study 72
3.2.1 Sample of the Study 72
3.3 Data Collection Tools 76
3.4 Procedures of Data Collection 76
3.4.1 Information Sheet for Institution Office 77
3.4.2 Interview Schedule for Director/Dean/Principals 77
3.4.3 Questionnaire Schedule for Students 77
3.4.4 Interview Schedule for Teachers 78
3.4.5 Direct Interview with the Director/Dean/Principals/ Government Officials 78
3.5 Statistical Analysis 79

References 82
3.1 **Method of the Present Study:**

In the current study normative survey method was used predominantly in the study to find out the present trends and status of development of technical education in Manipur relating to infrastructure both physical and human resources, trades and courses provided, students strength, facilities and provisions, examination and evaluation system and problems and prospects. The investigator had also employed the historical method.

3.2 **Population of the Study:**

The population of the present study consisted of the entire Technical Institutions in Manipur under State and Central Government located in Imphal East and Imphal West districts of Manipur. A map showing the locations of the two districts under investigation is presented in Figure No. 1.7.

3.2.1 **Sample of the Study:**

Eight Technical Institutions under state and Central Government were selected as Sample of the Study. The above Table No. 3.1 shows the Eight Technical Institutions under the present Study. The study comprised of 1131 students, 177 teaching staffs, 201 technical staffs and 8 Heads of the institution. Stratified Random Sampling with proportional allocation was used as sampling design for the study.
Table No. 3.1

Table Showing the Eight Technical Institutions under the Present Study

<table>
<thead>
<tr>
<th>Name of the Institution</th>
<th>Year of Estd.</th>
<th>Location</th>
<th>Affiliation</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Agriculture</td>
<td>1979</td>
<td>Iroisemba, Imphal West</td>
<td>CAU, Imphal</td>
<td>MHRD, Department of Agriculture Research &amp; Education (DARE) G.O.I.</td>
</tr>
<tr>
<td>Govt. Polytechnic</td>
<td>1956</td>
<td>Takyelpat, Imphal West</td>
<td>Manipur University</td>
<td>Higher and Technical Education, Government of Manipur</td>
</tr>
<tr>
<td>Institute of Cooperative Management</td>
<td>1988</td>
<td>Lamphel, Imphal West</td>
<td>Manipur University</td>
<td>Ministry of Agriculture, Department of Cooperative, Govt. of India</td>
</tr>
<tr>
<td>Industrial Training Institute</td>
<td>1959</td>
<td>Industrial Estate, Takyel, Imphal West</td>
<td>Director General of Employment &amp; Training, New Delhi</td>
<td>Directorate of Labour and Employment, Govt. of Manipur</td>
</tr>
<tr>
<td>Manipur Institute of Technology</td>
<td>1998</td>
<td>Takyelpat, Imphal West</td>
<td>Manipur University</td>
<td>University Grants Commission (UGC) and Govt. of Manipur</td>
</tr>
<tr>
<td>National Institute of Electronics &amp; Information Technology</td>
<td>1988</td>
<td>Akampat, Imphal East</td>
<td>Manipur University</td>
<td>Ministry of Communication Technology, Govt. of India</td>
</tr>
<tr>
<td>National Institute of Technology</td>
<td>2010</td>
<td>Takyelpat, Imphal West</td>
<td>NIT, Agartala</td>
<td>Minister of Human Resource Development (MHRD), Govt. of India</td>
</tr>
</tbody>
</table>
The Sample Size estimation procedures were given as follows:

1. Sample size estimation for students:
   (i) Prior information available (through pilot survey)
       - Average student/institute = 140 stds
       - Standard deviation “s” = 57.145
   (ii) Assumption
       - 95% precision
       - Margin of error “L” = 5
       \[ \therefore \text{Standard error “e”} = \frac{5}{1.96} = 2.55 \]
   (iii) Formula
       \[ N = \frac{s^2}{e^2} \]
       \[ = \frac{57.145^2}{2.55^2} \]
       \[ = 502.4 \cong 503 \]

2. Sample size estimation for teaching for teaching staff:
   (iv) Prior information available (through pilot survey)
       - Average teaching staff/institute = 26
       - Standard deviation “s” = 11.6025
   (v) Assumption
       - 95% precision
       - Margin of error “L” = 5
       \[ \therefore \text{Standard error “e”} = \frac{5}{1.96} = 2.55 \]
   (vi) Formula
       \[ N = \frac{s^2}{e^2} \]
       \[ = \frac{11.6025^2}{2.55^2} \]
       \[ = 20.7 \cong 21 \]
3. Sample size estimation for technical staff:

(vii) Prior information available (through pilot survey)
- Average technical staff/institute = 25
- Standard deviation “s” = 16.5974

(viii) Assumption
- 95% precision
- Margin of error “L” = 5
∴ Standard error “e” = 5/1.96 = 2.55

(ix) Formula
\[ N = \frac{s^2}{e^2} \]
\[ = \frac{16.5974^2}{2.55^2} \]
\[ = 42.3 \approx 42 \]

Sampling plan:

<table>
<thead>
<tr>
<th>Name of Institute</th>
<th>Sample to be selected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students</td>
</tr>
<tr>
<td>CAU</td>
<td>60</td>
</tr>
<tr>
<td>CIPET</td>
<td>33</td>
</tr>
<tr>
<td>GOPOLY</td>
<td>55</td>
</tr>
<tr>
<td>ICM</td>
<td>65</td>
</tr>
<tr>
<td>ITI</td>
<td>115</td>
</tr>
<tr>
<td>MIT</td>
<td>64</td>
</tr>
<tr>
<td>NIELIT</td>
<td>74</td>
</tr>
<tr>
<td>NIT</td>
<td>37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>503</strong></td>
</tr>
</tbody>
</table>
In actual survey, the adequate number of study subjects mentioned in the sampling plan might little bit be enhanced but none of the subject is reduced from the corresponding estimated number.

Out of 1131 Students population, 550 students (302 male and 248 female), of 378 teaching and technical staffs, 88 (55 male and 33 female), and 8 Heads of the institution were selected as the sample of the present study.

3.3 Data Collection Tools:

In order to make a thorough, comprehensive and analytical study pre-tested and semi-structural questionnaire and interview schedule were used for the purpose of data collection. The techniques which had been used were through records, documents, information, and questionnaire and interview schedule. The following tools were employed for collecting data and information by the investigator in the study:

(i) Information Sheet for Institution Office,
(ii) Interview schedule for Heads of the Institution,
(iii) Questionnaire Schedule for students,
(iv) Interview schedule for teachers, and
(v) Direct Interview with the Heads.

3.4 Procedures of Data Collection:

The questionnaire and interview schedule were framed related to each other, questions concerning the development trends and problems of technical education in the state and in such a way that the respondent may not have any confusion while responding. The questions were framed in a systematic way so as to avoid sparse response, error, slow response, scanty and frequently disappointed providing a very flimsy basis of generalization and thus applied by distributing to the students, teachers and head of the institutions.
3.4.1 Information Sheet for Institution Office:

Information sheet was prepared for the purpose of collecting various information of the institution in relation to the study. The information was collected from the office of the eight technical institutions. The sheet contained 30 items and was framed to find out the existing status of the eight institutions like infrastructure facilities, strength of teaching and non-teaching staff, courses provided, students enrollment, students examination appeared and pass-out, budget etcetera. A sample was given in Appendix – I.

3.4.2 Interview Schedule for Director/Dean/Principals:

Interview Schedule consisting 49 items divided into six sections was framed to find out the problems of the institutional administration, infrastructural facilities, teachers and students. The schedule was framed using Likert Five Points Scale in some questions, closed-ended of Yes/No type which the respondent were asked only to tick against the alternative suitable in their cases. Only one item was in open-ended form for free response and suggestion. A sample of the schedule appears in Appendix – II and the visiting certificate issued by the Head of the 8 Institutions were furnish in Appendix – V, VI, VII, VIII, IX, X, XI, XII.

3.4.3 Questionnaire Schedule for Students:

Questionnaire Schedule was framed base on closed-ended (fixed option-yes/no) type and one item was in open-ended form for free response by the student respondent. The schedule consisted of 27 questions keeping in view the institutional infrastructure facilities, courses provided, co-curricular activities, curriculum and syllabus, teaching techniques and teaching method, co-operation and co-ordination, examination system and various institutional and students problems. The questionnaire were distributed to 1000 students at three different interval that is 2008, 2010 and 2012 to collect the required information and data of the study targeting the estimated sample size of 503 respondents of all the
eight technical institutions. Out of 1000 schedules 560 responded completely, 22 incomplete and 418 failed to return. A sample of questionnaire schedule appeared in Appendix – IV.

3.4.4 Interview Schedule for Teachers:

For collecting relevant information from the teachers of the eight sample technical institutions, interview schedule containing 21 items using Likert Five Point Scale in many questions, closed-ended form of questions in some items and one open-ended form question for free response of the respondent was framed. Out of 378 teaching and technical staff of all the eight institutes’ 100 schedules were distributed targeting 21 teaching staff and 42 technical staff of the eight technical institutions. 86 interview schedules responded and 14 did not respond at all. A sample of Interview schedule was given in Appendix – III.

3.4.5 Direct Interview with the Director/Dean/Principals/Government Officials:

Personal Interview with the Directors, Dean, Principals, Project Officer of the sample technical institutions, Government Officials, and some of the Heads of both Private and Government technical institutions were taken place with prior permission from the concerned head of the institutions and government officers. The interview was held smoothly and warmly and also in a cordial manner.

The investigator had collected information related to the study from different government departments of Manipur. Information and data like statistical Handbook, Statistical data, Annual reports, documents, records, reports, literature etcetera from departments like Directorate of Economics and Statistic, Government of Manipur, Directorate of Education (University), Controller of Technical Education, Directorate of Information and Public Relation (DIPR), Office of Craftsman’s and Training, Department of Director General Labour and Employment, Government of Manipur, Veterinary
In regard to history of development of technical education, to develop Chapter of Introduction, Review of Related Literature and information for the study, the investigator ventured to collect materials visiting various institutions and libraries within the state and outside the state. The investigator had visited Oinam Ibohal Polytechnic, Keisampat, Institute of Bio-resources and Sustainable Development (IBSD), Imphal, Industrial Training Institutions like Ukhrul, Saikot, Ningthoukhong, Phaknung, Manipur Institute of Management Studies (MIMS), Master of Computer Application (MCA) Manipur University and libraries like D.M. College of Arts, R.K. Sanatombi B.Ed. College, Manipur University and all the eight sample technical institutions libraries. The investigator with the help and financial assistance of Indian Council for Social Science Research (ICSSR) North East Regional Centre, Shillong visited various libraries in Delhi like Jawaharlal Nehru University, Delhi University, Zainab Mila Islamia University, National Council for Educational Research and Training (NCERT), New Delhi, National University of Educational Planning and Administration (NUEPA), ICSSR-NASSDOC, Indian Institute of Technology, New Delhi, All India Council for Technical Education (AICTE), and personal visit to Dibrugarh University, Assam, North East Hill University (NEHU), Shillong, Mizoram University, Panjab University, Chandigarh for collecting materials related to technical education, the investigator also visited various website in relation with the study.

3.5 **Statistical Analysis:**

Statistical analysis was done with the following formulae:

(i) Descriptive statistical tests viz., Mean, standard deviation (SD), $x^2$-test, Likelihood Ratio test

(ii) Analysis of Variance Ratio (ANOVA)

(iii) Principal Component Analysis (PCA)
Development of Technical Education in Manipur – An Analysis

Photo No. 1: The investigator interview with Director, ICM, Imphal

Photo No. 2: The investigator interview with Principal, GOPOLY, Imphal
Development of Technical Education in Manipur – An Analysis

Photo No. 3: Group Photo with Teaching, Technical staffs and Project Officer, CIPET, Imphal.

Photo No. 4: The investigator collecting questionnaire schedule from the students.
Development of Technical Education in Manipur – An Analysis

References:


