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CHAPTER III

METHODOLOGY

3.00 Introduction:

Methodology is an essential gradient of scientific research. Sophisticated methodology constitute the core of scientific investigation. In fact, the validity and dependability of any research work is examined on the strength of its methodological sophistication.

Sampling techniques used, instruments selected, research designs developed, methods and procedures followed in data collection and processing and statistical treatment employed are some of the significant aspects of methodological considerations of any scientific research. The research methodology employed in the present study has been presented as under:

3.10 Sampling technique:

The dependability of the findings of any research depends to a large extent upon the size of the samples that have been drawn from the universe and the technique employed to select the samples upon which the hypotheses are verified.

The present conceptualizes investigations over managers and workers employed in different sections
and departments of the Bilal Steel Plant. Obviously the man-power engaged in production and non-production operations constitutes the universe of the study. A brief description of the universe and the methods, techniques and size of the samples for the present study have been presented as under.

3.11 The Universe:

The present study is concerned around the psychological investigation of the industrial personnel of Chattisgarh with special reference to the need motivations and cognitive styles of the managers and workers of Bilal Steel Plant. Thus, the socio-industrial setting of BSR and its industrial personnel constitute the universe of the present study.

State of Madhya Pradesh has been aptly called the 'State with a Future'. It has the Bilal Steel works, which as late Prime Minister Pt. Nehru once described are temples and place of pilgrimage. The state, thus, contains all the rich material as well as human resources that go to make a highly industrialized region. From coal to diamond, it is God gifted with many mineral deposits spread over the length and breadth of the state. A super thermal Power Station has been constructed at Korba which produces 200 mega watts units of electricity. Madhya Pradesh has the largest area among the States of India which covers 25% of the total forest area, in the
production of minerals, Madhya Pradesh stands third in India. Diamond deposits of Panna are the largest in the country. The iron ore deposits in the mines of Bailadila are perhaps the richest in the country from where iron ore is exported to Japan.

Present status of Industrialization in Madhya Pradesh:

Shilai has a unique history of growth and development since its very inception—symbolising in its attributes the rapid advancement of India's industrial sector, driven by a hunger for the latest technology, inspired by a desire for self-sufficiency, and stimulated by the insistent demands of a healthy economy.

Shilai is not only a metallurgical plant but an industrial combined in true sense of the terms. The production of the steel is to be from agriculture, forestry, mineral and human resource, it stands first in India. Agriculture occupies the significant place of pride in Madhya Pradesh, but the impact of industrialization, modernization and sanitation upon the human life has conceptually changed the very phase of occupations and vocations of the people of this State. With the awakening of Shilai steel plant in 1956, the Chhattisgarh region has developed numerous medium and large scale industries and factories. Numerous large and small scale organizations are also emerging in the region very
rapidly, some of the significant ones are cement, plastic, steel, oil, chemicals and fertilizers.

Nature, kind and magnitude of the expansion of industrial units in the Chhattisgarh region reveal that Bilai Steel Plant at Bilai and ACC Factory at Jamul in Surg district, Bharat Aluminium Project at Korba, NTPC at Korba, CCL Factory at Akaltara in Bilaspur, Mandhar CCL Factory at Mandhar, Century Cement Factory at Neukunth, Kodi Cement Factory at Bhatapara all in Raipur district and Iron Ore Project of National Mineral Development Corporation of India at Bailadila in Bastar District are some of the existing as well as emerging industrial units of the Chhattisgarh region that are converting the agriculturally rich region into the largest industrial belt of the country through agro-industrial developmental process. Excepting Bastar district, it is predicted that within the next 50 years, the rest of the region of Chhattisgarh will emerge into a biggest as well as richest industrial zones of the country ranging from longgarh on the east to Raigarh on the west along the Bombay - Howrah railway tracks extending over a distance of about 300 kms. It is expected that this industrial switch over in the region will change the very nature and the life of the living people of this region. At present it is seen that about 75% of the people of this region are working in industries, whereas only 25% of the people are involved in agriculture.
3.111 The Physical Setting and Plant Description:

Soon after India's independence, a decision was taken to set up three steel plants in the public sector during the second five year plan. One was to be located at Bourkela in Orissa, the other at Bilai in Madhya Pradesh and the third at Bargar, in West Bengal, each with an initial capacity to produce one million tonnes of steel annually.

The Bilai Steel Plant has been set up with Indo-Soviet techno-economic collaboration, the agreement for which was signed on Feb. 2, 1955.

Bilai, an obscure village of the fifties, was chosen as the site for the steel plant because of the availability of raw material and other infra-structure facilities nearby. Only coal was required to be brought from out of the State.

The earth work at Bilai started in May 1956 and in Feb. 4, 1959, with the commissioning of the first Blast Furnace by the first president of India, Dr. Rajendra Prasad, production began at the steel plant. By 1961, the one million tonne phase of the Bilai Steel Plant was completed.

But even before this work was started on the expansion of the plant's capacity to 2.5 million tonnes, this phase was completed by 1967 with the commissioning of the .125 speed, multi-strand wire rod mill.
Growth is a continuous process in Bhilai. Even while work on 2.5 million tonne stage was on, further expansion to four million tonne capacity was taken in hand, introducing modern and sophisticated technology in steel process and a giant 3600 mm plate mill.

With the expansion and commissioning of the new units of oxygen-blown converters, continuous casting complex and plate mill, BSL will be entering the field of flat products. Its major units like plate mill, converters shop and continuous casting complex have already been put on hot trials and construction of the seventh blast furnace and the ninth cokeoven battery is in progress and these units are likely to becommissioned in 1987.

3.112 **Industrial Potentialsity:**

**Mineral Resources:**

Madhya Pradesh is rich not only in human resources, but also in material resources. It is known for its rich mineral deposits. It is the large deposits of iron, coal, bauxite, manganese, copper and lime-stone. It occupies third place as regards minerals in India. The chief mines in the state are located as under:

1. **Coal** - Chhindwara, Bilaspur, Korba, Raigarh, Surguja, Shajol and Sidhi.

2. **Iron ore** - Lure, Naijaur, Baster, Jabalpur, Sandeur, Khargone, Chhatarpur, Sidhi.
A number of support systems are necessary in every factory. These systems do not necessarily directly touch the product, but they are necessary in order to permit the production process and the material handling systems to convert the material to furnished goods or services. The support systems are usually man-machine type systems and most of them are primarily concerned with the collection, storage analysis and output of the information for the purpose of directing or controlling other systems, including other support systems.

3.113 Expanding Horizons of Dhalbil Steel Plant:

In its quest to meet the challenges of India's growing industrial needs, Dhalbil has undertaken an ambitious expansion programme to raise its annual capacity to 4 million tonnes of raw steel — representing a 60% rise in capacity. The new stream comprises a Top-blown Oxygen Converter shop, a continuous casting shop and a 3600 mm plate mill.

The expansion project is also aimed at bringing the plant up-to-date in terms of technology through the
the introduction of oxygen blown converters for steel-making, continuous casting for casting molten steel and heavy plate mill with heat treatment facilities for producing extra wide and thick plates.

Apart from these main units the expansion encompasses a second power plant, a second oxygen plant, a Central Raw Materials Blending and Storage Yard, new installations for fluid facilities like compressed air, steam, circulating water, chilled water, contaminated water oxygen, acetylene and Blast Furnace and Coke Oven gases. Power step-down and distribution systems and auxiliary shops have also been incorporated. In addition, there is one more Blast Furnace (No. 7) and a Coke Oven battery (No. 9) with a second coal preparation plant.

The total volumes of work involved:

| Concrete | 1717435 m³ |
| Structural erection | 167720 tonnes |
| Mechanical equipment | 132240 tonnes |
| Electrical equipment | 37011 tonnes |

Metallurgical and Engineering Consultants (India) Ltd. Principal Consultants, Hindustan Steelworks Construction Ltd. are the main contractors for civil and structural works. The entire project was coordinated, controlled, and supervised by Bhilai's own construction organization and project management division.
3.114 Bhilai steel Plant as a Socio-Technical System

Bhilai steel Plant is one of the largest steel plants equipped with latest modern steel technology and skilled man power. It has adopted and translated recent thinking on man-machine relationship. Consequently it has been converted into an effective socio-technical system, which takes care of not only the technological sophistication and technical excellence but also humanistic approach to its management systems which includes workers employed in the production and non-production operations of the plant, though SBP has introduced by and large an automatic technology, in production operation it has engaged as large as 64887 employees on its roll list that includes both executives and non-executives. The stratified man-power position of the SBP has been exhibited as under:
Table III.1 Man-power Position of the Plant on 31-3-1965

(Arith. Up-to-date 1934-35, Steel Authority of India, Ltd)

<table>
<thead>
<tr>
<th></th>
<th>Executives</th>
<th></th>
<th>Non-Executives</th>
<th></th>
<th>M. &amp; H.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exist</td>
<td>Expan</td>
<td>Total</td>
<td>Exist</td>
<td>Expan</td>
<td>Total</td>
</tr>
<tr>
<td>Works</td>
<td>2343</td>
<td>597</td>
<td>2740</td>
<td>27811</td>
<td>4819</td>
<td>32630</td>
</tr>
<tr>
<td>Administration</td>
<td>509</td>
<td></td>
<td>509</td>
<td>3734</td>
<td>181</td>
<td>3915</td>
</tr>
<tr>
<td>T.O./Medical</td>
<td>283</td>
<td></td>
<td>283</td>
<td>7017</td>
<td></td>
<td>7317</td>
</tr>
<tr>
<td>Construction</td>
<td>393</td>
<td></td>
<td>393</td>
<td>3961</td>
<td></td>
<td>3961</td>
</tr>
<tr>
<td>Mines</td>
<td>277</td>
<td></td>
<td>277</td>
<td>10482</td>
<td>939</td>
<td>11421</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>3805</strong></td>
<td><strong>397</strong></td>
<td><strong>4202</strong></td>
<td><strong>53005</strong></td>
<td><strong>5949</strong></td>
<td><strong>58954</strong></td>
</tr>
</tbody>
</table>


It is evident from Table III.1 indicating total manpower position in BSR that out of a total employee to the extent of 64,937, as many as 4,202 are executives whereas the rest are non-executive workers, the executives include managers of various categories. It is further evident from the table that out of the total 4,202 managers 2,740 are engaged in production operations in the BSR whereas 509 managers are posted in Administration, the total being 3,249. The present study operationally conceptualizes managers working in production operations and administration as universe of manager and workers.

3.1 The Sample: Size and Technique:

After having examined the nature, kind and size of the universe of managers and workers engaged in production process and administration in BSR, an attempt has been made to draw representative samples from these industrial units. Since the present study has been designed for managers and workers of BSR, these two terms have been operationally defined here. In the present study a manager has been defined as those service-personnel employed in the industrial units who have been assigned some duties of industrial management that may deal with material, financial, personnel, production or marketing and engaged in planning, controlling, coordinating, staffing, decision making and such other activities. They are the persons who are well qualified with technical or non-technical knowledge and skill and who have got high
risk-taking ability, great competitive spirit and are result oriented and goal directed persons. They are task-oriented persons with a strong desire of reaching high-goal setting and goal attainment behaviour. He has been classified either at the management category or under officers. A worker, on the contrary is an employee working under the supervision of a manager. He is that service personnel who has been assigned to do some kind of manual and machine operation in the industries.

In the present study, 100 representative samples of managers have been initially drawn from the universe of 249 managers of different categories working in the production process and administration units of BSP, by employing systematic random quota sampling technique. However, on the strength of their non-cooperative participation, fake, incited and non-functional responses in response to various test items, 9 managers were deleted from the study proper. The size of the sample of managers so obtained has been presented as under:
Table III.2 Size of retained sample managers holding various positions and workers from production process and administrative units of BSI.

<table>
<thead>
<tr>
<th>Departments</th>
<th>Managers</th>
<th>Deputy Managers</th>
<th>Asstt. Managers</th>
<th>Total Workers (N=91) (N=90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Personnel</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Financial</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Statistical</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>EDSON</td>
<td>4</td>
<td>6</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Marketing</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Blast furnace</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Work shop</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>HR</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
<td><strong>37</strong></td>
<td><strong>32</strong></td>
<td><strong>91</strong></td>
</tr>
</tbody>
</table>

A comparative view of Table III.1 and Table III.2 reveals that 100 managers holding different levels of managerial positions in the production process and administration units have been randomly drawn from the total managerial positions of 349 as on 30-3-1985 which constituted a proportion of 1:32.50 before screening and 1:35.71 after screening for the study proper when the size of the managers were 100 initially and 91 after screening. The size of the sample managers
holding various managerial positions and the industrial
units to which they are associated as the field of duties
have been also provided in Table III.2 for the study
proper which reveals that sample managers have been drawn
from 9 departments of D.C. and their size range between
7 and 14; the total being 91, the largest number of sample
managers (n = 14) has been drawn from MICON whereas the
lowest from blast furnace unit, these 91 sample managers
for the study proper hold 5 managerial position, i.e.,
managers, deputy managers and assistant managers, their
total number being 22, 17 and 32 respectively (Table III.2).

After having selected a sample of 91 managers
the sample workers from the same units and of the same
sample size were also selected following individual to
individual matching system from the points of view of
organization climate, sex, general physique, however the
sample managers and workers observed variations par-"cularly
from the points of view of age, educational qualification,
length of service and experience and job-specification. Though employing individual to individual
matching system between sample managers and sample workers,
100 managers and 100 workers were initially drawn out
but as pointed out earlier 9 managers were deleted out
of 100 because of their invalid and nonfunctional
responses, in the same way 10 workers were deleted from
a total of 100 workers initially drawn on the same ground
as specified above in case of managers thereby leaving back a total of 90 workers for the study-proper. The size of the samples of managers (n = 91) and workers (n = 90) the size of the sample of managers and workers so selected have been presented in Table III.2 indicating a detailed specification of their stratified units from where they have been drawn.

The selected samples of 91 male managers and 90 male workers working in the same departments were further stratified from the points of view of their age differentiation, age-wise differentiation of the two samples of the managers and workers has been presented as under:

Table III.3: Age differentiation of sample managers and workers

<table>
<thead>
<tr>
<th></th>
<th>Managers</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) 50 and above</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>(b) 30 to 49</td>
<td>48</td>
<td>37</td>
</tr>
<tr>
<td>(c) 29 and below</td>
<td>29</td>
<td>36</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>91</strong></td>
<td><strong>90</strong></td>
</tr>
</tbody>
</table>

Categories of age differentiation in the stratification of sample managers and workers followed the rationale of frequency occurrence in each cell of the managers and workers and from the points of view of
statistical treatment the three categories of age differ-
etiation as given in Table III.3 was found to be the
most appropriate ones.

The samples of male managers and workers were
further stratified in terms of their educational status.
Table III.4 given as under describes educational status
of the sample managers and workers in the present study.

Table III.4: Variation in educational Status of
Sample Managers and Workers

<table>
<thead>
<tr>
<th>Educational Status</th>
<th>Managers</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Matric</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>(b) Graduate/B.E.</td>
<td>58 (BE: 44, Non BE: 14)</td>
<td>40</td>
</tr>
<tr>
<td>(c) Post-graduate</td>
<td>33 (ME: 01, PG: 32)</td>
<td>-</td>
</tr>
<tr>
<td>Total:</td>
<td>91</td>
<td>90</td>
</tr>
</tbody>
</table>

The educational data presented in Table III.4
reveals that no manager is holding educational excellence
below that a graduate level. Similarly no worker is
holding a Post-graduate degree. Most of the managers
(n = 44) are B.E. holding technical qualification but
at the same time they have been assigned the duties of
managerial positions also. Thus, technical educational
qualifications is more meaningful for the managers not
only to ascribe them the status of a technocrate, but
also of managerial positions, by which they have been assigned to manage man-power also.

In the present study the hypotheses have been formulated keeping in view stratification of sample managers and workers from the points of view of their age differentiation and variations in their educational attainment.

3.20 Instruments used:

The following instruments have been used for assessing the variables under considerations

(1) for tapping Achievement Motivation: Achievement Motivation Inventory (AMI) by Prayag Mehta (1964)
(2) for measuring \( n_{\text{App}} \): Approval Motive Scale (AMS) by Tripathi and Tripathi (1980)
(3) for measuring \( n_{\text{Power}} \) and \( n_{\text{Aff}} \): McClelland's (1961) Six Projective Tat Pictures: (namely - 5, 24, 83, 9, 24 and 23).
(4) for tapping the extent of field independence - dependence: Hindi adaption of Hitkin's (1962) Hidden Figure Test (HFT) prepared by Kalnitkar & Belode (1985).

The details of these instruments along with the rationale for their selection are given below:
3.2.1 Measure of Achievement Motivation:

3.2.11 The Concept:

The achievement motivation is being studied in relation to economic growth, job-satisfaction and academic performance (McClelland, 1961). The basic motivating factors leading man to work along hours under unsatisfactory conditions are related not to good pay, job security, good supervisor or good working conditions. The effective motivators are closely related to the content of the job that the person is handling. They are based on the feeling of accomplishment and growth with respect to valued objectives.

Criteris of Achievement Motivation: (McClelland, 1961)

(1) A desire for success in competition with others.
(2) A high power of risk taking ability
(3) A desire to meet a self-imposed standard of excellence.
(4) A desire to improve educational standards.
(5) A desire to become more result oriented and goal directed.
(6) A desire to accomplish something unique and original.
(7) Involvement in a long term career goal.
3.212 Rationale for selecting AMI:

The projective technique have been, no doubt, indiscriminately employed for measuring n Ach by the researchers, but they lack in specificity, objectivity, reliability and validity because of their unstructured, ambiguous stimulus characteristics. To meet this problem of scientific measurement, objective measure of n Ach has been developed by Prayag Mehta (1969) under Indian conditions. Since economic status (McClelland, 1961), social class (Weld, 1960; McClelland, 1955; Rose, 1956; Veroff et al, 1960), adolescents culture, social acceptance (Ryan, 1958; Tannenbaum, 1962; Fraser, 1959; Coleman, 1960) and other socio-cultural dimensions of a culture or a community are potential determinants of n Ach, it was decided to use the Achievement Motivation Inventory (AMI) of Prayag Mehta (1969) which provided an objective measure of n Ach. Further more the AMI has been validated against the Murray's (1938) TAT type pictures; and thus it is a dependable as well as a valid instrument.

From the point of view of administration, it is more economical, in terms of time and energy, and can be easily administered because of its being self-administered inventory. It does not present a language barrier for the Ss, and therefore, can be conveniently administered over the sample under study. It is the only objective, reliable and valid test available for the measurement of
n ACH in India, and therefore its selection was valid on a prior ground. It is meant for all age groups which has been taken up for the present study; and the norms prepared over the normative sample of standardization, enhance its meaningfulness in interpretation and dependability and validity in selection.

3.2.1.3 The Description of AMI:

The AMI of Prayag Mehta (1969) is an objective measure in Hindi for estimating the n ACH of Indian youths. The inventory contains 22 descriptive statements of pictorial stimuli which were tried out in connection with the development of the thematic apperceptive measure of n ACH. In each of these 22 items, there are six alternatives of which the Ss are required to check one. Two, each of these six response options, are achievement related (AR), task related (TR), unrelated to achievement (UR). The response-options for these twenty-two items have been selected from the pupils responses of the pictorial cues-stories to about 50 TAT type pictures after having coded them as either achievement related imagery (AI), task related (TI), or unrelated (UI). The six selected pictures out of 50 pictures cues showed satisfactory discrimination and evokability for achievement imagery. These pictures contain culture-bound cues familiar to the normative sample. The contents of AMI includes the economic status (Couléland, 1961), social
approval (Atkinson et al., 1962), social class (Eld, 1960; McClelland, 1955; Rosen, 1956; Veroff et al., 1960), adolescents culture, social acceptance (Ryan, 1958; Tannenbaum, 1962; Fraser, 1959; Coleman, 1960) and other socio-cultural dimensions of a culture or a community. The AMI is given in Appendix A.

3.22 Measure of Approval Motive:

3.22.1 The Concept:

Approval motive has a connotation with social sanction which operates on social desirability norms of the society (Tripathi and Tripathi, 1980; Parlowe, 1960; Iwawaki and Cowen, 1964; Cowen and Frankel, 1964; Edwards and Walsh, 1963). Scales developed by Crowne and Marlowe (1960), Klieger and Walsh (1967), Crandall et al. (1965), Lunneborg and Lunneborg (1964), Walsh et al. (1974). As such social desirability has been accepted as measures of the strength of approval motive. But the nature and kind of social sanction and norms of social desirability scales have been developed abroad by foreign test constructors can hardly be said to be the appropriate, suitable and valid measures of social desirability in India. Further, the two terms, i.e., social desirability and approval motive, cannot be said to be interchangeable psychological concepts. Tripathi and Tripathi (1960) differentiated that "concept of social desirability refers to the extent to which a person or respondent
acquiescence to statements that depict some behaviours, attitudes, or dispositions that are in conformity with the norms, values and aspirations of the social spectrum of which the respondent is a member. Thus, social desirability is a concept that denotes a phenomenon". Approval motive is, rather, a more comprehensive concept that includes social conformity, social sanction, social approval, social sanctity and social desirability. Crowne and Marlowe (1964) and Tripathi and Tripathi (1980) have used it as an explanatory construct. They assume that one agrees or disagrees with socially desirable or undesirable statements because of a motivational disposition which has been designated as approval motive" (Tripathi and Tripathi, 1980). Though high degree of approval motive conforms with greater number and variety of socially desirable statements; but it does not rule out the acceptance of other types of behaviour quite different from social desirability (Tripathi and Tripathi, 1980) as mentioned above. Thus, approval motive is a more comprehensive concept than social desirability; and it includes in addition such terms as social conformity, social sanction, social sanctity, social approval as its component.
3.222 **Rationale for selection of Approval Motive Scale (AMS):**

In view of the fact that the managers and workers display certain specific talents in relation to their factory, the study of some specific approval motive pertaining to their streams of social desirability in industries have been thought to be more revealing.

From the points of view of diagnostic values and practical utility in various walks of the industrial life, the need for approval was included in the present study.

For the present study, Approval Motive Scale (AMS) by Tripathi and Tripathi (1980) has been selected because:

(1) This Approval Motive Scale (AMS) was available in Hindi as could be used with profit with the sample at hand. Further, most of the workers in the factory could not understand English.

(2) There was no other standardized objective test of approval motive in Hindi other than this easily available for the present study.

(3) A close view of literature on approval motive indicated tentative areas along which behaviour indicative of approval motive occur. These areas are:

(1) Normative behaviour, (2) Social conformity, (3) Positive self-presentation, (4) Offensiveness, (5) Dependency (6) Social responsiveness and (7) Social approval. The
AMS has been developed under Indian socio-cultural conditions, taking into consideration these seven social values and norms appropriate for the sample under study.

(4) The validity and reliability of the AMS have been sufficiently high.

(5) The AMS is not only comprehensive but also is quite suitable and appropriate for both the samples under study and could be administered with convenience and ease.

(6) No other standardized objective approval motive measure except this was relevant for the present study.

(7) In addition to above the AMS meets most of these operational specifications of n Approval stated in Chapter II.

3.2.2.3 Description of Approval Motive Scale (AMS):

The Approval Motive Scale (AMS) designed by Tripathi and Tripathi (1980) consists of 72 items. It has been spread over 7 areas, namely (i) normative behaviour, (ii) social conformity (iii) positive self-presentation, (iv) defensiveness, (v) dependency, (vi) social responsiveness, and (vii) social approval. The distribution of number of items as well as their total in each area has been given below:
<table>
<thead>
<tr>
<th>Areas of Approval Motivation</th>
<th>No. of items</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Normative behaviour</td>
<td>6, 10, 25, 28, 34, 35, 38, 39, 62</td>
<td>09</td>
</tr>
<tr>
<td>2. Social conformity</td>
<td>2, 8, 14, 16, 20, 29, 41, 50, 54, 64</td>
<td>10</td>
</tr>
<tr>
<td>3. Positive self-presentation</td>
<td>12, 44, 45, 76, 47</td>
<td>09</td>
</tr>
<tr>
<td>4. Defensiveness</td>
<td>5, 7, 17, 24, 31, 32, 52, 58, 70, 71</td>
<td>10</td>
</tr>
<tr>
<td>5. Dependency</td>
<td>9, 11, 19, 33, 48, 49, 65, 66</td>
<td>08</td>
</tr>
<tr>
<td>6. Social Responsiveness</td>
<td>4, 18, 27, 35, 42, 60, 37</td>
<td>07</td>
</tr>
<tr>
<td>7. Social Approval</td>
<td>13, 12, 13, 21, 22, 23, 26, 33, 40, 43, 51, 56, 59, 61, 63, 67, 68, 72</td>
<td>19</td>
</tr>
</tbody>
</table>

The coefficient of temporal stability computed by rest-retest method at an interval of 2 to 3 months has been found to be $r_{bb} = 0.89$ whereas the coefficient of internal consistency estimated by split-half technique using Spearman Brown prophecy formula has been estimated to be $r_{tt} = 0.92$.

The AMS has satisfactory content, construct, intrinsic and predictive validity. The predictive validity of the AMS has been established by various investigators against many important variables (e.g., cognitive complexity: Tripathi, 1980; verbal conditioning: Tripathi and Tripathi, 1980; social perceptions
Tripati, 1978; religiosity: Tripathi and Shrivastava, 1980; Sine's anxiety scale: Tripathi, 1980 etc.). Lavoie and Kandall (1976) reported a very high negative correlation ($r = -0.76$) between approval and hostility. Tripathi and Saxena (1978) have also reported negative relationship ($r = -0.361, P < 0.01$) between approval motive and hostility. Percentile norms for various groups have also been prepared and reported in the manual. The AMS is given in Appendix B.

3.23 Measures of Need for Affiliation and Power:

3.23(a) The concept of n Affiliation:

Need for Affiliation is a sociogenic motive in which interpersonal attraction plays significant role. Shiple and Veroff (1952) have conceptualized two aspects of affiliation motivation: (a) seeking affiliation because of the pleasant stimulus reward value of the affiliative relationship which McClelland (1953) calls 'Approach behaviour', and (b) seeking affiliation because of the painful stimulus value of rejection which he termed as 'Avoidance behaviour' (McClelland, 1951) with this theoretical orientation, the n Affiliation is characterized by fear of rejection; i.e. the type of affiliation imagery scored is separation from objects of affiliation — primarily a statement of deprivation (Shiple — 1952). Thus, n Affiliation'
deprivation theory of motivation, i.e. that behaviour is motivated by the avoidance of a painful stimulus.

"Thus affiliation imagery is considered to be present where there is an objective statement in the story that a person is separated from another, and is concerned about it or concerned about possible separation" (Shipley and Veroff, 1952). According to Shipley and Veroff (1952) a story to be scored for "Affiliation imagery" should contain at least the following types of imagery:

(a) Concern with rejection, being jitted, "stood up", left out, out cast, or ignored;
(b) Concern with loneliness, being without former friends or relatives, including mere mention of the word "lonely";
(c) Concern with physical departure (e.g. negative affective concern over the death of a loved one);
(d) Concern with psychic separation (i.e. a quarrel, fight or disagreement);
(e) Concern with no reciprocal love (i.e. one loves another, and is concerned because the other does not love him);
(f) Separation (i.e. seeking forgiveness, repenting, or changing one's ways to preserve an interpersonal relationship).
The fifteen adjectives used in a sociometric test employed by Shipley and Veroff (1952) for evaluating the interpersonal concern were: aggressive, antisocial, argumentative, conceited, cooperative, entertaining, friendly, independent, intolerant, modest, self-assured, sincere, submissive, sympathetic, and timid. This sociometric procedure of rating fraternity brothers, being rated by fraternity brothers, being friends had the probability of arousing the Ss' affiliation.

It is thus, inferred from the above description that 'fraternity rejection or separation imagery' and popularity or social approval imagery constitute important aspects of affiliation.

Shipley and Veroff (1952) defined affiliation imagery exclusively in terms of 'separation anxiety', i.e., affective concern over separation from another person(s).

Atkinson Heyns and Veroff (1954) broadly viewed the concept and argued that 'any evidence of concern over establishing or maintaining a positive affective relationship with another person(s) is viewed as symptomatic of motivation to affiliate'. Approval seeking has also been found to be an important aspect of affiliation (Bjum and Miller, 1952; Atkinson, Heyns and Veroff, 1954).

It is evident from the above discussion that the concept of affiliation can be best explained in terms of 'Affiliation Imagery'. Heyns, Veroff and Atkinson
(1958) have characterized the "affiliation imagery" as under:

(a) Some evidence of concern in one or more of the characters over establishing, maintaining, or restoring a positive affective relationship with another person. This relationship is most adequately described by the word "friendship".

(b) Affiliative concern is also readily inferred from some statement of how one person feels about another or their relationship. Some statement of liking, or the desire to be liked or accepted or forgiven reveals the nature of the relations.

(c) The affiliative concern of one of the characters may be apparent in his reaction to a separation or some disruption of an interpersonal relationship.

(d) Evidences of nurturant activity, companionate activity or close interpersonal relationship are excluded from affiliation imagery; however, concern over marriage is a heterosexual relationship that normally implies more than sex, and hence is scored affiliation Imagery.

The concept of affiliation, therefore, could be considered as concern with other person or social object. Affiliation with other person in some cases be instrumental to the satisfaction of other needs, allowing the individual
to use his interaction with others to attain a variety of personal goals, including the supportive reduction of anxiety under threat. Affiliation on the other hand, may also be thought of as a quest for approval and acceptance by others, conceiving of motivation to seek social approval as an autonomous system of goal-directed behaviour.

3.234 (b) The concept of a Power:

Power motivation is also a sociogenic term that lays more significance to interpersonal relationship governed by interpersonal attraction. From this point of view, "the power motive will be considered that disposition directing behaviour toward satisfaction contingent upon the control of the means of influencing another person(s)" (Veroff, 1957). However, the definition of the power motive as offered by Veroff (1957) is meant to include more than dominance. Adler (1927) and Sullivan (1947) have suggested the significance of power motivation in leadership behaviour and group dynamics (Cartwright, 1944).

Veroff (1957) has elaborated and described power motives in terms of presence or absence of 'Power Imagery'. He has mentioned three sources of 'Power Imagery'. They are: (a) statement of affect, (b) statements of control activity, and (c) statements of superior-subordinate role relations. These three sources of power imagery reveals that:
"There is some statement of affect surrounding the maintenance or attainment of the control of the means of influencing a person" (Veroff, 1957).

"There is a definite statement of some one doing something about maintaining or attaining the control of the means of influencing another person" (Veroff, 1957).

There is a statement of an interpersonal relationship which in its execution is culturally defined as one in which there is a superior person having control of the means of influencing another one who is subordinate" (Veroff, 1957).

Veroff (1957) has pointed out that 'Power imagery' should contain thoughts, feeling and actions of one of the characters which indicates that the character is concerned with the control of the means of influencing a person.

3.2.32 Rationale for Selection of Projective TAT Pictures as Measures of n Affiliation and n Power

The review of psychological test measuring n Aff and n Power does not provide any objective standard measures, which could be objectively and with profit convenience administered over the samples under study. This absence of relevant, appropriate, objective, dependable and valid standardized objective instrument compelled the investigator to go for projective measures.
Review of literature on projective tests reveals the contribution of McClelland, Atkinson, Clark and Howell (1953) who developed the multiple purpose sets for n Ach, n Aff and n Power consisting of six pictures 5, 28, 83, 9, 24, 53 - in that order. These six TAT pictures were administered to adult businessmen which enhanced the relevance and meaningfulness of their application for the present study.

Further in a single operation, from the stories written on each of these six TAT pictures, both n Aff and n Power could be measured. The same stories were coded for the two n Motives, i.e. n Aff and n Power. Since the achievement motive could be measured by an standardized objective test the projective measures were not used for n Ach through provisions have been made as specified above for the measurement of n Ach too in these six TAT pictures.

On the strength of these logical considerations the multiple purpose sets consisting of six TAT pictures 9, 23, 83, 3, 24, 53 - in that order were employed in the present study for measuring n Aff and n Power.

7.233 Description of Projective Measures for n Power and n Affiliation:

The multiple purpose sets (Atkinson, 1958, 835-36) have been found more appropriate and valid for the present work on the grounds that the sets have been selected after they have been administered to 50 adult businessmen; and
Thus, the multiple purpose sets specified above by McClelland (1953) have better relevance, and are meaningful than other TAT pictures.

The description of these six TAT pictures are as under:

<table>
<thead>
<tr>
<th>Picture No.</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>&quot;Lawyers&quot; office: two men talking in a well-furnished office - picture 5 of the extended n achievement series (272)</td>
<td>American Documentation Institute (ADI) Washington 25</td>
</tr>
<tr>
<td>26</td>
<td>Man seated at drafting board (see Nicciati and Sudacca, 342)</td>
<td>-do-</td>
</tr>
<tr>
<td>33</td>
<td>Conference group seven men variously grouped around a conference table (see Atkinson et al., Ch. 5)</td>
<td>Harold group Projection (HGP) University of Michigan Press.</td>
</tr>
<tr>
<td>9</td>
<td>Good work, mill! Man working on papers at office desk (see Nicciati, Clark, Sudacca, 341, 342),</td>
<td>American Documentation Institute (ADI) Washington 25</td>
</tr>
<tr>
<td>34</td>
<td>&quot;Howlards&quot; Men and youth cuttin', outdoors (see Nicciati and Sudacca, 342)</td>
<td>-do-</td>
</tr>
<tr>
<td>53</td>
<td>Man relaxing on plane</td>
<td>-do-</td>
</tr>
</tbody>
</table>

The six TAT pictures - 5, 28, 33, 9, 24, and 53 have been presented in Appendix C.

The relative norms obtained on adult businessmen are presented by Atkinson (1958, 335-36) on n achievement, n affiliation and n power as criteria of the relevance and the relative effectiveness of each of these six TAT pictures 5, 26, 33, 9, 24 and 53 for n rich, n off and n power have been given as under:
(a) Statistical Differentials on the three $n$ variables

<table>
<thead>
<tr>
<th>$n$ variables</th>
<th>Mean</th>
<th>SD</th>
<th>$C_1$</th>
<th>$C_2$</th>
<th>$C_3$</th>
<th>$C_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>7.46</td>
<td>5.98</td>
<td>12.00 &amp; above</td>
<td>7-11</td>
<td>4-6</td>
<td>3 and below</td>
</tr>
<tr>
<td>Affiliation</td>
<td>6.08</td>
<td>3.89</td>
<td>10.00 &amp; above</td>
<td>6-9</td>
<td>3-5</td>
<td>2 and below</td>
</tr>
<tr>
<td>Power</td>
<td>6.74</td>
<td>3.34</td>
<td>9.00 &amp; above</td>
<td>7-8</td>
<td>3-6</td>
<td>4 and below</td>
</tr>
</tbody>
</table>

(b) Differential percentage Imagery response to pictures on the three $n$ variables

<table>
<thead>
<tr>
<th>$n$ variables</th>
<th>5</th>
<th>28</th>
<th>83</th>
<th>9</th>
<th>24</th>
<th>53</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>46</td>
<td>48</td>
<td>26</td>
<td>64</td>
<td>40</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Affiliation</td>
<td>74</td>
<td>70</td>
<td>32</td>
<td>22</td>
<td>44</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>90</td>
<td>-</td>
<td>56</td>
<td>14</td>
<td>48</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>
The relative occurrence of percentage imagery on different pictures for the three n variables reveals the strength and weakness of the six TAT pictures as projective measures of n Achievement, n Affiliation and n Power.

The responses obtained in terms of stories written by managers and workers have been scored only for n Affiliation and n Power, and not for n Ash and n Approval as objective measures have been employed for measuring these two latter need motivations.

3.24 MEASURE OF COGNITIVE STYLE:

3.241 The Concept:

Cognitive style is a hypothetical construct that has been developed to explain the process of mediation between stimuli and responses. The term cognitive style refers to the characteristic ways in which individuals conceptually organize the environment. Coop and Sigel (1971) used the term cognitive style "to denote consistencies in individual modes of functioning in a variety of behavioural situations". Cognitive style is equated with behaviour rather than mediating process. Messick (1970) attempted to conceptualize the cognitive style in four categories. Scanning, leveling-shaping, constricted-flexible control and tolerance for incongruous or unrealistic experience. The fifth approach was
originated by Witkin and his co-workers (1954) who use the term field-dependence and field independence.

Kogan (1973, 1976) distinguished three types of cognitive styles:

1. Cognitive styles of the first type refer to an ability to perform, with a performance judged against a standard.

2. For cognitive styles, greater value is placed on one of the stylistic categories.

3. Cognitive styles do not relate to ability.

Witkin, Clifton, Raskin and Karp (1971) evaluated cognitive style as the characteristic, self-consistent modes of functioning which individual show in their perceptual and intellectual activities. These cognitive styles are manifestations in the cognitive sphere of still broader dimensions of personal functioning which cut across diverse psychological areas.

Criteria of Cognitive Styles (Witkin et al., 1954)

1. Field-dependent persons are characterized by a passive acceptance of the environment, showed either inhibition of impulses or uncontrolled expression of hostility and are unable to exclude or assimilate unintegrated material in the play situation.
(2) Field-independent persons express an active copying in dealing with the environment, they show their ability to express their impulses in a relatively controlled manner and are organized in the play.

(3) Field Dependent people lack in insight and they have got feeling of inferiority.

(4) Field Independent people have got high insight power and they have got the feeling of superiority.

(5) Field Dependent people are more oriented to environmental cues in the social realm and are more extroverted persons.

(6) Field Independent persons are more cognition-oriented and are introverted in behaviour.

(7) Field Dependent individuals are those who are dependent or reliant on external cues to an extreme degree, they have greater need for support.

(8) Field Independent individuals are able to rely at least partially on internal cues in their perceptual processes, they are independent individuals and need only little support.
3.242 Rationale for Selection of Hidden Figure Test (HFT)

No persons are born alike, each of the persons differ from others in their personality traits, and their intellectual levels. Here in the present study our aim is to see the cognitive style of the managers and workers whether they are Field-dependent or Field-independent persons. In order to see this differentiation Witkin's (1954) Hidden Figure Test was selected for the reasons given below:

(1) From the point of view of administration, it is more economical in terms of time and energy, than other test that are available.

(2) This was the only cognitive style scores test easily available for the present study.

(3) The validity and reliability of the cognitive style test have been found sufficiently high.

(4) This test has been meant for all age group.

3.243 Description of Cognitive Style test i.e., (H.F.T.)

The original HFT in English was developed by Witkins et al (1954) to measure the magnitude of FD and FI in a group situation. Witkin and his associate have also developed other tests like Rod and Frame Test and Embedded Figure Test which measure FD and FI, but their application requires individual testing.
Hindi adaptation of Witkin's HFT was used for the present study which was developed by Palnitkar and Melode (1985). This HFT Hindi research form is consisting of two parts, each part include 16 hidden figures arranged in order of difficulty. The split-half reliability of the HFT Hindi research form as determined by Hulsen's formula (Guilford, 1954) turned out to be .93. Thus, this Hindi research form can be said to be highly reliable. This Hindi research form was found to be fairly valid as the item validity coefficients ($r_{bis}$), when determined with the help of Flanagan's (Given in Guilford, 1954) for 32 figures were found to be highly significant ranging from .62 to .99.

3.30 Research Design:

The present study has been designed to investigate the differential need motivations of managers and workers in the light of certain demographic cognitive variables. Need for Achievement, Need for Approval, Need for Affiliation and Need for Power have been treated as dependent variables, whereas job-status, age, cognitive styles and educational level were considered as the independent variables. The research design that has been followed in the present investigation has been outlined as under:
<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Dependent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(1)</strong> Job status (2 variations)</td>
<td><strong>(1)</strong> _ Achievement</td>
</tr>
<tr>
<td>(a) Male Managers</td>
<td>(ii) _ Power</td>
</tr>
<tr>
<td>(b) Male workers</td>
<td>(iii) _ Affiliation</td>
</tr>
<tr>
<td><strong>(2)</strong> Age (3 variations)</td>
<td>(iv) _ Approval</td>
</tr>
<tr>
<td>(a) 50 and above</td>
<td>(1) Sex</td>
</tr>
<tr>
<td>(b) 35 to 49 years</td>
<td>(ii) Organizational climate</td>
</tr>
<tr>
<td>(c) 34 and below</td>
<td></td>
</tr>
<tr>
<td><strong>(3)</strong> Educational level (4 variations)</td>
<td></td>
</tr>
<tr>
<td>(a) Below Matric</td>
<td>Exogenous variables (controlled at the stage of sampling)</td>
</tr>
<tr>
<td>(b) Matric</td>
<td></td>
</tr>
<tr>
<td>(c) Graduate</td>
<td></td>
</tr>
<tr>
<td>(d) Post-Graduate</td>
<td></td>
</tr>
<tr>
<td><strong>(4)</strong> Cognitive style (2 variations)</td>
<td></td>
</tr>
<tr>
<td>(a) Field-Dependent</td>
<td></td>
</tr>
<tr>
<td>(b) Field-Independent</td>
<td></td>
</tr>
</tbody>
</table>

The instrument measuring the dependent and independent variables were administered over the Ss in accordance with the testing programmes scheduled as under:
<table>
<thead>
<tr>
<th>Testing Sequence</th>
<th>Instruments administered</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Session I</td>
<td>Achievement Motivation Inventory</td>
<td>25 minutes</td>
</tr>
<tr>
<td>(2) Session II</td>
<td>Approval Motive Scale</td>
<td>30 minutes</td>
</tr>
<tr>
<td>(3) Session III</td>
<td>Six TAT Pictures measuring ( n ) Power and ( n ) Affiliation</td>
<td>40 minutes</td>
</tr>
<tr>
<td>(4) Session IV</td>
<td>HFT (Hindi Research Form)</td>
<td>25 minutes (10 minutes for each part plus rest interval) Total time: 120 minutes per subject</td>
</tr>
</tbody>
</table>

All these measures of four need motivations and cognitive style were administered by the researcher following an individual testing programme under laboratory like conditions in the BSP premises. Specifically, the present study has been approached from three different angles which are reflected in the type of hypotheses put to test. They are:

**Types of Hypotheses**

(a) Correlational Hypotheses:

Inter-correlation between

- \( n \) Ash
- \( n \) Approval
- \( n \) Affiliation
- \( n \) Power
- Cognitive styles
- and age.
(b) **Interactional Hypotheses:**

ANOVA for $J \times 2 \times 2$

Factorial Design separately for each of the four $n$ Motivation in the case of workers and managers.

**Interesting Variables:**

1. Age (5 variations) $n$ Ash
2. Educational level (2 variations) $n$ App
3. Cognitive style (2 variations) $n$ Power

(c) **Differential Hypotheses:**

Difference in Need Motivations ($n$ Ash $n$ Approval $n$ Affiliation $n$ Power) with respect to

1. Job status
2. Age
3. Educational level
4. Cognitive style

3.40 **Data Collection and Processing:**

Data collection of any research work takes into consideration the following steps:

1. Methods and procedures followed
2. Precautions observed in the conduct of experimentation and test administration
3. Instructions delivered to the Ss,
4. Rapport established with and responses collected from the Ss, and
5. Scoring of responses.
The processing of data also takes into consideration analysis and tabulation operations. Keeping in view the hypotheses formulated, data were collected sequentially and systematically which have been presented as under:

3.41 **Methods and Procedures:**

In the present study, the instruments that were used, were classified under two main categories:

(i) The standardized objective psychological instruments measuring \( n \) Ach, \( n \) Approval and cognitive style employing respectively Achievement Motive Inventory (AMI), Approval Motive scale (AMS) and Hidden Figure Test (HFT); and

(ii) The Projective Tests using six TAT pictures of McClelland for measuring \( n \) Affiliation and \( n \) Power.

These two types of psychological instruments required two different types of methods and procedures in their administration. The former measures are standardized objective tests, in which instructions given for the administration of the test were strictly followed, whereas in the case of the latter two measures, instructions for the administration of the TAT Pictures for measuring \( n \) Power and \( n \) Affiliation were carefully observed in all testing sessions. A proctor's help was sought not only in the administration of the Psychological Tests but also in counter-checking the scores of the Ss. Testing conditions were controlled and made
identical to the best of researcher's capacity in all the sessions.

In addition, in each of the two kinds of psychological tests, the following specific observations were also made.

(a) For standardized Psychological Tests: (for
   for achievement, approval and Cognitive style HFT)

(i) The instructions given in the manuals were clearly read out to the subjects and his doubts were removed.

(ii) Time limits as specified in the manuals were allowed strictly.

(iii) After the S has clearly followed the techniques of taking the tests, the test booklets were given to him as per testing programme.

(iv) Both the instruments were administered by the investigator in an 'Individual Testing' situation.

(v) An auditory signal to start the test was given to the S. After collecting data he was thanked for his cooperation.

(b) For Projective Tests (i.e. Six TAT Pictures):
   (for Power and Affiliation)

   Both Power and Affiliation have been measured by employing Six TAT pictures (i.e., 5, 28, 83, 9, 24 and 53) of McClelland (1953). Each of the Six TAT pictures were
first of all shown sequentially to the S for 15-20
seconds and the presentation of one picture was followed
by a story-writing by the subject for 5 minutes keeping
in view the following four questions:

(a) What is happening? Who were the persons?
(b) What has led upto the situation? i.e. what has
    happened in the past?
(c) What is being thought? What is wanted?
    By whom?
(d) What will happen? What will be done?

Conditions of presentation of the TAT pictures
in all testing situations and sessions were kept identical
to the best of the capacity of the researcher.

3.42 Instructions Delivered to the Ss:

After establishing proper rapport with the
subject instructions were given. Instructions delivered
to the subject for taking the psychological tests vary
with the nature of the instruments used. The parti-
culars of the instructions given were as under:

(a) Instructions given for the Administration of
    standardized objective tests:

(1) For "AMI:

After establishing proper rapport with the
subject, the following instructions were given to him:

"A test will be administered upon you, which is
a self administering test. This test consists of
twenty-two items having six alternative to each item. These alternative answers are sub-divided into three parts; two each of the six alternative responses. Two of the answers are achievement related (AR), two are task related (TR) and two are unrelated (UR) to achievement.

"You have to put a check mark ( ) against each of the statements in terms of your approval or disapproval". If you accept, please put a check mark ( ), if you do not accept, then put a cross ( x ) mark. There is no right or wrong answer. There is no time limit, but please hurry up and try to answer all the questions within 25 minutes.

(ii) For AMS:

Instructions given on the front page of the AMS booklet were brought to the notice of the testee and he was specifically instructed about the technique of taking the AMS. He was informed that he will be given 20 minutes to show his approval or disapproval in terms of 'Yes' or 'No' by putting a ( ) mark or a cross ( x ) mark, as the case may be.

(iii) For Cognitive Style (H&T):

This test is a self administration test which can be administered individually or in a group. In this test there are 5 geometrical figures in different shapes,
they are marked as ( ) and out of these 5 figures any one of the figure is hidden in the pattern. 

You have to search and find out the hidden figure. In all there are 32 figure patterns, for 1 to 16 patterns 10 minutes time limit is fixed and for 17-32 pattern, 10 minutes time limit is permitted. But remember that in this test there is negative marking. So try to do as fast as you can and as correctly as you can.

(b) Instructions Delivered for the Administration of TAT Pictures:

"This test consist of six TAT pictures you will be shown one after another, all the six pictures for about 15-20 seconds each. Immediately after seeing the picture, you have to write a story on the contents given in the picture. You would be given five minutes to construct your story on the following four guidelines (as outlined under 'Methods and Procedures').

Remember that while writing stories, you should not be much concerned with the right or wrong of your thought. You have to simply write down whatever comes to your mind. You should write as fast and as much as possible. After having completed the story writing of the first picture, you would be shown the second picture, you would be shown the second picture in the same period in the same way for the same period and you have to write the story within five minutes. In this way one after another, you would be shown 6 pictures;"
and you have simply to write stories on each of these within 5 minutes following the guide lines told to you."

If you have understood, then here is the first picture. You have 5 minutes to make up a story. Let us see, how well you can do.

3.43 Precautions observed:
(1) The first and the foremost precaution that the researcher has to take is to establish proper rapport between administering the psychological tests, whether standardized test or projective technique.

(2) Before the standardized tests were distributed to the Ss, they were properly screened by the investigator. Similarly the TAT pictures were also tested for their functioning before the pictures were actually exposed to the Ss.

(3) The scores obtained by the Ss were checked and then counter checked by two scorers. This precaution ensured greater confidence and more objectivity over the scores obtained by the Ss.

3.44 Report and Responses:

Establishing effective human relationship is a precondition for developing proper rapport and collecting dependable and valid responses. Before testing programme was started, permission was taken by the
investigator from the Chief Manager (BSP) for data collection. After that date and time was taken by each Manager and worker.

Further, on the date of test administration, before the tests were taken by them, they were requested to extend their full cooperation in the testing programme. They were taken into confidence that this testing programme has been organised for research purpose only; and all their responses will be kept confidential and will be used for research purposes only.

3.50 Scoring of the responses:

After having collected the data, the responses of the Ss were scored by the researcher. However, a counter check of the total scores obtained by the Ss was done by the Proctor who helped the investigator in the conduct of psychological tests. The interscorer scheme enhanced the dependability and objectivity of the raw scores obtained by the Ss.

As such, measurement of n Ach, n App, n Aff, n Pow and cognitive style (HFT), through their respective instruments, required separate scoring system for each of them. The responses collected on AMI, AMS and HFT were scored by employing objective scoring system, whereas the scoring system for the responses collected on the Six TAT pictures was made to a large extent objective by pin-pointing the criteria as well as by
assigning numerical weights to the actual responses made by the Ss through content analysis of the texts written by the Ss in the form of stories. McClelland (1956) has designed a specific scoring system for each of the need motives; but the same has been translated into objective measures.

The particulars of the scoring systems followed are given below:

3.51 Scoring of the standardized objective instruments:

3.511 Scoring of AMI:

The AMI consists of 22 items with six response options; two each for AR, TR and UR. The distribution of response-options among three category responses, i.e. AR, TR and UR, which serves as the scoring key is given as under:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>AR</th>
<th>TR</th>
<th>UR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2,5</td>
<td>1,4</td>
<td>3,6</td>
</tr>
<tr>
<td>2</td>
<td>3,6</td>
<td>2,5</td>
<td>1,4</td>
</tr>
<tr>
<td>3</td>
<td>1,4</td>
<td>3,6</td>
<td>2,5</td>
</tr>
<tr>
<td>4</td>
<td>2,5</td>
<td>3,6</td>
<td>1,4</td>
</tr>
<tr>
<td>5</td>
<td>3,6</td>
<td>1,4</td>
<td>2,5</td>
</tr>
<tr>
<td>6</td>
<td>1,4</td>
<td>2,5</td>
<td>3,6</td>
</tr>
<tr>
<td>7</td>
<td>2,5</td>
<td>1,4</td>
<td>3,6</td>
</tr>
<tr>
<td>8</td>
<td>3,6</td>
<td>2,5</td>
<td>1,4</td>
</tr>
<tr>
<td>9</td>
<td>1,4</td>
<td>3,6</td>
<td>2,5</td>
</tr>
<tr>
<td>10</td>
<td>2,5</td>
<td>3,6</td>
<td>1,4</td>
</tr>
<tr>
<td>11</td>
<td>1,4</td>
<td>3,6</td>
<td>2,5</td>
</tr>
<tr>
<td>12</td>
<td>1,4</td>
<td>2,5</td>
<td>3,6</td>
</tr>
<tr>
<td>13</td>
<td>2,5</td>
<td>1,4</td>
<td>3,6</td>
</tr>
<tr>
<td>14</td>
<td>3,6</td>
<td>2,5</td>
<td>1,4</td>
</tr>
<tr>
<td>Item No.</td>
<td>AR</td>
<td>TR</td>
<td>UR</td>
</tr>
<tr>
<td>---------</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>16</td>
<td>2.5</td>
<td>3.6</td>
<td>1.4</td>
</tr>
<tr>
<td>17</td>
<td>1.4</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>18</td>
<td>2.5</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>19</td>
<td>3.5</td>
<td>2.6</td>
<td>1.4</td>
</tr>
<tr>
<td>20</td>
<td>3.5</td>
<td>2.6</td>
<td>1.4</td>
</tr>
<tr>
<td>21</td>
<td>1.4</td>
<td>1.4</td>
<td>2.5</td>
</tr>
<tr>
<td>22</td>
<td>1.4</td>
<td>2.5</td>
<td>3.6</td>
</tr>
</tbody>
</table>

The AMI provides four scores: AR, TR, UR and AMI scores. The scores of each 'S' are counted on the strength of the nature of the responses as specified above. The total AMI is obtained by deducting the total Ur scores. The scores of AR range between 2 and 20, and TR and UR from 0 to 14. Fifty per cent of the responses are AR with a mean at 11.40 and 50% remaining responses are TR and UR. The AMI designer is silent on the processing system of negative scores. In the present study, all negatives scores have been reduced to zero. Thus higher scores indicates greater magnitude of a need on this inventory.

3.512 Scoring of AMS:

The AMS consists of 72 items classified into seven areas. A score of 1 is given to each response if it is being true or false. Thus, scores can range between 0 and 72. Larger scores are indicative of stronger approval motive.

The scoring key is given as under:
<table>
<thead>
<tr>
<th>Item</th>
<th>Approval Responses</th>
<th>Item</th>
<th>Approval Responses</th>
<th>Item</th>
<th>Approval Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T</td>
<td>25</td>
<td>F</td>
<td>49</td>
<td>F</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>26</td>
<td>F</td>
<td>50</td>
<td>F</td>
</tr>
<tr>
<td>3</td>
<td>T</td>
<td>27</td>
<td>F</td>
<td>51</td>
<td>T</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>28</td>
<td>F</td>
<td>52</td>
<td>F</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>29</td>
<td>F</td>
<td>53</td>
<td>F</td>
</tr>
<tr>
<td>6</td>
<td>T</td>
<td>30</td>
<td>F</td>
<td>54</td>
<td>F</td>
</tr>
<tr>
<td>7</td>
<td>T</td>
<td>31</td>
<td>T</td>
<td>55</td>
<td>F</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>32</td>
<td>F</td>
<td>56</td>
<td>F</td>
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<tr>
<td>9</td>
<td>T</td>
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<td>F</td>
<td>57</td>
<td>T</td>
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<tr>
<td>10</td>
<td>T</td>
<td>34</td>
<td>T</td>
<td>58</td>
<td>F</td>
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<tr>
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<td>F</td>
<td>35</td>
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<td>12</td>
<td>T</td>
<td>36</td>
<td>T</td>
<td>60</td>
<td>T</td>
</tr>
<tr>
<td>13</td>
<td>T</td>
<td>37</td>
<td>F</td>
<td>61</td>
<td>T</td>
</tr>
<tr>
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<td>T</td>
<td>38</td>
<td>T</td>
<td>62</td>
<td>T</td>
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<tr>
<td>15</td>
<td>F</td>
<td>39</td>
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<tr>
<td>16</td>
<td>F</td>
<td>40</td>
<td>F</td>
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<td>42</td>
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<td>19</td>
<td>F</td>
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<tr>
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<td>71</td>
<td>T</td>
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<tr>
<td>24</td>
<td>T</td>
<td>48</td>
<td>F</td>
<td>72</td>
<td>F</td>
</tr>
</tbody>
</table>

3.5.13 Scoring of the HFT:

The HFT consist of 32 items, in each of the item there are five alternatives. A score of one mark is given to each response if the subject finds out the correct hidden figure. Thus the score ranges from 0 to 32, larger scores are indicative of more field-independent. The item-wise scoring key is given below:
<table>
<thead>
<tr>
<th>Item</th>
<th>HFT Response</th>
<th>Item</th>
<th>HFT Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>17</td>
<td>E</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>18</td>
<td>K</td>
</tr>
<tr>
<td>3</td>
<td>E</td>
<td>19</td>
<td>D</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
<td>20</td>
<td>B</td>
</tr>
<tr>
<td>5</td>
<td>B</td>
<td>21</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>D</td>
<td>22</td>
<td>K</td>
</tr>
<tr>
<td>7</td>
<td>E</td>
<td>23</td>
<td>B</td>
</tr>
<tr>
<td>8</td>
<td>A</td>
<td>24</td>
<td>K</td>
</tr>
<tr>
<td>9</td>
<td>B</td>
<td>25</td>
<td>E</td>
</tr>
<tr>
<td>10</td>
<td>D</td>
<td>26</td>
<td>E</td>
</tr>
<tr>
<td>11</td>
<td>K</td>
<td>27</td>
<td>D</td>
</tr>
<tr>
<td>12</td>
<td>A</td>
<td>28</td>
<td>A</td>
</tr>
<tr>
<td>13</td>
<td>E</td>
<td>29</td>
<td>D</td>
</tr>
<tr>
<td>14</td>
<td>E</td>
<td>30</td>
<td>E</td>
</tr>
<tr>
<td>15</td>
<td>K</td>
<td>31</td>
<td>E</td>
</tr>
<tr>
<td>16</td>
<td>K</td>
<td>32</td>
<td>A</td>
</tr>
</tbody>
</table>

It is to be mentioned here that although Witkin et al (1954) suggested negative measuring, as penalty for guessing on the HFT. This suggestion was not followed, while scoring the HFT responses, for the simple reason that every guessing need not be correct.

3.32 Scoring of Responses from TAT Pictures as Projective Measures:

The responses from six TAT pictures as projective measures have been collected and processed for $g$ Affiliation and $g$ Power. The responses of systematically
analyzed, coded and quantified on a five point scale.

The criteria of scoring based on coding system of the
responses have been presented as under:

3.521 **Scoring of Responses on 6 TAT Pictures**

for a **Affiliation**:

Serious attempts have been made to develop the
scoring procedures for measuring the affiliation motive
(McClelland, 1953; Shipley and Veroff, 1952; Atkinson,
Identification of a particular sequence of imaginative
behaviour as affiliation related imagery perhaps constitutes
the most significant aspect of scoring the affiliation motive. Characteristic attributes of affiliation
motive which have been included in its definition play
the crucial role in identifying the affiliation related
imagery.

Heyns, Veroff and Atkinson (1958) in the paper
on "A scoring manual for the Affiliation Motive" have
suggested that, "The affiliation score is obtained
for each story by counting it for each of the following
categories: Affiliation Imagery (Aff Im), Need (N),
Successful Instrumental Activity (It), Positive Antici-
patory Goal State (Gst), Positive Affective state (Gt),
Environmental obstacles (Sw) and Themes (Th). The maximum
possible score in one story is +7. Both doubtful and
unrelated imagery are here scored zero. However, it is
advisable to note all of the categories described even though in the light of current evidence, not all of them should enter into the determination of the $n$ Affiliation score.

However, the subjectivity in scoring of the projective TAT pictures and the other limitations regarding reliability and validity of the results for which the projective techniques are denounced, question the very application of projective measures. However, keeping in view the limitations of the subjectivity inherent in the scoring of data from projective instruments, an attempt has been made by the investigator to design her own objective criteria for measuring the $n$ Affiliation.

In the process of developing objective criteria for scoring the data obtained on the six TAT pictures revealing $n$ Affiliation, a large number of criterion statements related to Affiliation Imagery were recorded from various sources; and they were then screened and identified by a pool of three judges. A criterion statement revealing the Affiliation Related Imagery was retained on having 100% agreement among the three judges. These criterion statements were then converted into 5 point scale ranging from 'strong through Moderate, Mild, slight to weak' and were assigned weights ranging respectively from 5 to 1. Before the actual scoring started, the investigator underlined the representative words and phrases from the TAT responses which referred to,
revealed or denoted the ideas inherent in the criterion-
statement of the scoring key prepared by the investigator.

In the second operation, two judges scored
separately these underlined responses on the strength of
the objective scoring system, and the mean of the two
scores was considered as the total scores on m Affiliation
of the subject. The criterion-statement scaled
down into five point scale given below:

<table>
<thead>
<tr>
<th>Criterion of m Affiliation</th>
<th>Strength of m Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strong Moderate Mild Slight Weak</td>
</tr>
<tr>
<td></td>
<td>(5) (4) (3) (2) (1)</td>
</tr>
</tbody>
</table>

A. Statement showing friendship relations:

I. Positive emotional relationship with another person:

(a) Establishing friendship

(b) Maintaining friendship

(c) Restoring friendship

(d) Feeling and anxiety of being accepted by others
    or anxiety of being socially accepted.

B. Statements relating concern about separation or
feeling of rejection from another person:

(a) Feeling or anxiety of being disliked or rejected
    by others.

(b) Feeling of liked or being associated by others.

(c) Feeling, thoughts or activity related or concern shown
    about disrupted or broken relationship.
(d) Feeling sorrow or grief for repentance about the broken relationship

(e) Involving oneself in restoring the broken relationship through words, thoughts and deeds.

(f) Concern with loneliness, being without former friends or relatives.

(g) Concern with physical departure like death of a loved one etc.

(h) Concern with psychic separation i.e., quarrel, fight or disagreement

(i) Feeling of forgiving and forgetting with a view to maintain a friendly relations.

(C) Statements relating Affiliative Activities:

(a) Organizing parties/meetings/visit group discussions etc.

(b) Participating in parties/meetings/group discussions etc.

(c) Advising others to conduct affiliative activities.

(d) Feelings, thoughts and activities related to reunions.

(e) Concern about group solidarity and consciousness

(f) Concern about social welfare activities and happiness of other persons.

(g) Efforts made in words and deeds for counseling and reuniting the friendly relations.

(h) Feeling of being popular or efforts made to gain popularity.
All responses on the six TAT stories indicative of Affiliation Imagery were scored by a pool of two judges by using these objective criteria. Statements on a five point scale and the mean of the two scores on all the six TAT stories was considered as the total Affiliation Motive score of an individual. Development of this objective criterion-measure reduced subjectivity and other limitations inherent in projective measures to a large extent.

3.522 Scoring of TAT responses for a Power

McClelland and his associates (1953) have shown that scoring stories written in response to pictures can be used as a basis for measures of strength of the achievement and the affiliation. Veroff (1957) employed the same logic for scoring the power motive. Veroff (1957) used the coding method by following the seven criteria for the scoring of stories written by the Ss on the strength of TAT pictures.

Veroff (1955) specifically remarks that "It is of crucial importance for scoring for power motivation that the scorer understand the behavioural sequence. Once a person is able to identify the presence of imagery in a story that is related to power motivation, then the subcategory of coding logically follows from the behavioural sequence". A systematic subjective scoring system for power motivation based on coding
method of the stories written on TAT pictures has been presented by Veroff (1953) in his paper on "A Scoring Manual for the power Motive". He specifically mentioned that if power imagery is scored then the greatest possible number of sub-categories which can be scored in single story is:

(a) Need (+1);
(b) Instrument: Either 1+, 1- or 2?
(c) Goal Attainment: Ga (+1); Ga (+1).
(d) Blocks in the person or in the world: (Sp (+1); Sw (+1)).
(e) Affective state: (Co (+1); Co- (+1)) and
(f) Theme: (Th (+1)).

Together with +1 for power imagery, this would make the maximum score possible +10.

Despite the numerous advantages that projective techniques has in the measurement of the deep seated feelings desires motives and intentions, it has its unique methodological limitations from the points of view of its subjective scoring system. The above criteria of scoring the stories written on the basis of the TAT pictures also suffer from the same defects.

With a view to enhance objectivity in scoring and thereby to raise the dependability and validity of the results obtained, an objective measurement criteria by scaling down the typical representative responses into five point scale, were employed.
In the process of developing an objective measurement, a large number of criterion-statements denoting power imagery were collected from various sources and they were then screened and identified, by a pool of judges as power related imageries. A statement was retained as "Power--related imagery if 100% agreement prevails among the judges. These criterion-statements were then scaled down into five point scale ranging from strong through moderate, mild and slight to weak and were assigned respective weights of 5, 4, 3, 2 and 1 to these responses. Before a story was scored, to contents revealing, denoting or referring to the ideas inherent in the criterion-statements were first of all simply underlined.

In the second operation, two judges scored separately these underlined responses on the strength of the objective scoring system and the mean of the two scores was considered as the total score, on power motive of the subject. The criterion statements scaled down into five point scale have been given as under:
## FIVE POINT SCALE

<table>
<thead>
<tr>
<th>Criterion of Power</th>
<th>Strength of Power</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strong Mode- Mild All-Weak</td>
</tr>
<tr>
<td></td>
<td>Rate</td>
</tr>
<tr>
<td>Relative weights</td>
<td>5</td>
</tr>
</tbody>
</table>

### A: Statements of Affect:

1. Emotionally concerned about getting or maintaining control of the means of influencing person(s).
   (a) Wanting to win a point
   (b) To show dominance
   (c) To gain a position of control
   (d) Wanting to avoid weakness or humiliation
   (e) To convince some one.
   (f) Directing others.

### B: Statements of control activity.

11. Actually involved in something in getting or keeping control over the means of influence:
   (a) Arguing
   (b) Demanding or forcing
   (c) Giving a command
   (d) Trying to convince
   (e) Punishing
   (f) Physical power in action.
(C) Statements of superior–subordinate Role Relationship:

III: A superior has a control of the means of influencing a subordinate:

(a) Control of the means of influencing the subordinate by words and expression;

(b) Control of the means of influencing the subordinate by action.

All responses on the TAT stories indicative of power imagery were scored by a pool of two judges by employing this objective criterion—statements on a five point scale and the mean of the two scores on all the six TAT pictures was taken as the total power motive scores of an individual.

3.60 Statistical Treatment:

The present study has taken into consideration three main types of hypotheses. The statistical treatments go in accordance with the nature and kind of data which are largely determined by the kind of hypotheses formulated.

The three types of hypotheses and the statistical treatment employed in their verification are given as under:
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Kind of Hypothesis Formulated</th>
<th>Statistical Treatments Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Correlational Hypotheses:</td>
<td>Pearson Product Moment Coefficient of Correlation</td>
</tr>
<tr>
<td>(2)</td>
<td>Interactional Hypotheses:</td>
<td>ANOVA</td>
</tr>
<tr>
<td>(3)</td>
<td>Differential Hypotheses:</td>
<td>Mean, Standard Deviation and 't' test.</td>
</tr>
</tbody>
</table>

The next chapter deals with "Results and Interpretations and Discussions".