CHAPTER III

METHODOLOGY

In this chapter, the procedures and methods applied in selection of subjects, selection of variables, selection of tool, description of tool, competence of the tester, administration of the tool and collection of data and statistical technique are presented.

SELECTION OF SUBJECTS

The purpose of the study was to analyse the selected psychological profiles among All India Inter-University Chess players. To achieve the purpose, 60 subjects each have been selected based on the tournament ranking as high, moderate and low achievers to a total strength of 180 subjects from All India Inter-University Chess tournament conducted at Chhatrapati Sahu Ji Maharaj University, Kanpur, Uttar Pradesh, India. Out of 89 universities participated in the tournament, the top ten teams \((n_1=60)\) were selected as high achievers, the middle ten teams \((n_2=60)\) were selected as moderate achievers and the bottom ten teams \((n_3=60)\) were selected as low achievers as per
the rank list released by the organizing committee of the All India Inter-University Chess Tournament in the year 2007-2008. Since it is Inter-University level chess tournament a group of six players comprised a team, whose participation in the tournament will be accounted for score of the game to prepare the rank list. The age of the subjects ranged from 18 to 25 years. The classification of subjects based on the tournament ranking is given below.

**High Achievers**

1. University of Madras, Chennai
2. Anna University, Chennai
3. University of Calcutta, Kolkata
4. Delhi University, Delhi
5. Visvesvara Technical University, Tirupathi
6. University of Mumbai, Mumbai
7. Patna University, Patna
8. R.S.T.M. Nagpur University, Nagpur
9. Calicut University, Calicut
10. Ranchi University, Ranchi
**Moderate Achievers**

1. Mahatma Gandhi University, Kottayam
2. Utkal University, Utkal
3. University of Allahabad, Allahabad
4. University of Kerala, Trivandrum
5. Bangalore University, Bangalore
6. Bharathidasan University, Tiruchy
7. C.S.J.M. University, Kanpur
8. Manipur University, Imphal
9. Gulbarga University, Gulbarga
10. Vellore Institute of Technology, Vellore

**Low Achievers**

1. Kuvembu University, Belgam
2. Jiwaji University, Gwalior
3. Alagappa University, Karaikudi
4. Kurukshtra University, Kurukshtra
5. Mysore University, Mysore
6. Sri Venkateswara University, Tirupathi
7. Thiruvalluvar University, Vellore
8. University of Rajasthan, Jaipur
9. Madurai Kamaraj University, Madurai
10. North Maharashtra University, Jalgon

**SELECTION OF VARIABLES**

All the factors of Cattell’s 16 PF questionnaire-Forms A (1991 Edition) have been selected as criterion variables for this study and are as follows:

Factor A – Warmth

Factor B – Reasoning

Factor C – Emotional Stability

Factor E – Dominance

Factor F – Liveliness

Factor G – Rule-Consciousness

Factor H – Social Boldness
Factor I – Sensitivity

Factor L – Vigilance

Factor M – Abstractedness

Factor N – Privateness

Factor O – Apprehension

Factor Q1 – Openness to Change

Factor Q2 – Self-Reliance

Factor Q3 – Perfectionism

Factor Q4 – Tension

**DESCRIPTION OF THE TOOl**

The Sixteen Personality Factor Questionnaire (or 16PF), is a multiple-choice personality questionnaire which was scientifically developed over several decades of research by Raymond B. Cattell and his colleagues. The sixteen primary factors were a result of factor-analyzing hundreds of measures of everyday behaviors to find the fundamental traits behind them. The test provides scores on sixteen primary personality scales all of which are bi-polar (meaning that both ends of each scale have
a distinct, meaningful definition). The test’s 60 years of research have found it to be useful in predicting behavior in a range of settings, and to provide an in-depth, integrated picture of the individual’s whole personality. For example, it is commonly used in schools and colleges, clinical and counseling settings, in career counseling and employee selection and development, as well as in basic personality research. The test has also been translated into over 35 languages and dialects, and is widely used internationally.

Research has indicated that the test is useful in predicting a wide variety of behaviors, such as creativity, academic success, cognitive style, empathy and interpersonal skills, leadership potential, conscientiousness, self-esteem, frustration, tolerance, coping patterns, marital compatibility, and job performance. Following is the details of Primary Factors and Descriptors in Cattell’s 16 Personality Factor Model.
<table>
<thead>
<tr>
<th>Descriptors of Low Range</th>
<th>Primary Factor</th>
<th>Descriptors of High Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impersonal, distant, cool, reserved, detached, formal, aloof <em>(Schizothymia)</em></td>
<td>Warmth (A)</td>
<td>Warm, outgoing, attentive to others, kindly, easy-going, participating, likes people <em>(Affectothymia)</em></td>
</tr>
<tr>
<td>Concrete thinking, lower general mental capacity, less intelligent, unable to handle abstract problems <em>(Lower Scholastic Mental Capacity)</em></td>
<td>Reasoning (B)</td>
<td>Abstract-thinking, more intelligent, bright, higher general mental capacity, fast learner <em>(Higher Scholastic Mental Capacity)</em></td>
</tr>
<tr>
<td>Reactive emotionally, changeable, affected by feelings, emotionally less stable, easily upset <em>(Lower Ego Strength)</em></td>
<td>Emotional Stability (C)</td>
<td>Emotionally stable, adaptive, mature, faces reality calmly <em>(Higher Ego Strength)</em></td>
</tr>
<tr>
<td>Deferential, cooperative, avoids conflict, submissive, humble, obedient, easily led, docile, accommodating <em>(Submissiveness)</em></td>
<td>Dominance (E)</td>
<td>Dominant, forceful, assertive, aggressive, competitive, stubborn, bossy <em>(Dominance)</em></td>
</tr>
<tr>
<td>Serious, restrained, prudent, taciturn, introspective, silent <em>(Desurgency)</em></td>
<td>Liveliness (F)</td>
<td>Lively, animated, spontaneous, enthusiastic, happy go lucky, cheerful, expressive, impulsive <em>(Surgency)</em></td>
</tr>
<tr>
<td>Expedient, nonconforming, disregards rules, self indulgent <em>(Low Super Ego Strength)</em></td>
<td>Rule-Consciousness (G)</td>
<td>Rule-conscious, dutiful, conscientious, conforming, moralistic, staid, rule bound <em>(High Super Ego Strength)</em></td>
</tr>
<tr>
<td>Shy, threat-sensitive, timid, hesitant, intimidated (<em>Threctia</em>)</td>
<td>Social Boldness (H)</td>
<td>Socially bold, venturesome, thick skinned, uninhibited (<em>Parmia</em>)</td>
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<tr>
<td>Utilitarian, objective, unsentimental, tough minded, self-reliant, no-nonsense, rough (<em>Harria</em>)</td>
<td>Sensitivity (I)</td>
<td>Sensitive, aesthetic, sentimental, tender minded, intuitive, refined (<em>Premsia</em>)</td>
</tr>
<tr>
<td>Trusting, unsuspecting, accepting, unconditional, easy (<em>Alaxia</em>)</td>
<td>Vigilance (L)</td>
<td>Vigilant, suspicious, skeptical, distrustful, oppositional (<em>Protension</em>)</td>
</tr>
<tr>
<td>Grounded, practical, prosaic, solution oriented, steady, conventional (<em>Praxernia</em>)</td>
<td>Abstractedness (M)</td>
<td>Abstract, imaginative, absent minded, impractical, absorbed in ideas (<em>Autia</em>)</td>
</tr>
<tr>
<td>Forthright, genuine, artless, open, guileless, naive, unpretentious, involved (<em>Artlessness</em>)</td>
<td>Privateness (N)</td>
<td>Private, discreet, nondisclosing, shrewd, polished, worldly, astute, diplomatic (<em>Shrewdness</em>)</td>
</tr>
<tr>
<td>Self-Assured, unworried, complacent, secure, free of guilt, confident, self satisfied (<em>Untroubled</em>)</td>
<td>Apprehension (O)</td>
<td>Apprehensive, self doubting, worried, guilt prone, insecure, worrying, self blaming (<em>Guilt Proneness</em>)</td>
</tr>
<tr>
<td>Traditional, attached to familiar, conservative, respecting traditional ideas (<em>Conservatism</em>)</td>
<td>Openness to Change (Q1)</td>
<td>Open to change, experimental, liberal, analytical, critical, free thinking, flexibility (<em>Radicalism</em>)</td>
</tr>
</tbody>
</table>
Group-oriented, affiliative, a joiner and follower dependent
(*Group Adherence*)

<table>
<thead>
<tr>
<th><strong>GROUP ADHERENCE</strong> (Q2)</th>
<th><strong>SELF-RELIANCE</strong> (Q2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerates disorder, unexacting, flexible, undisciplined, lax, self-conflict, impulsive, careless of social rules, uncontrolled</td>
<td>Perfectionism (Q3)</td>
</tr>
<tr>
<td>(<em>Low Integration</em>)</td>
<td>Perfectionistic, organized, compulsive, self-disciplined, socially precise, exacting will power, control, self-sentimental</td>
</tr>
<tr>
<td>(High Self-Concept Control)</td>
<td></td>
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Relaxed, placid, tranquil, torpid, patient, composed low drive
(*Low Ergic Tension*)

<table>
<thead>
<tr>
<th><strong>LOW ERGIC TENSION</strong> (Q4)</th>
<th><strong>TENSION</strong> (Q4)</th>
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<tbody>
<tr>
<td>Tense, high energy, impatient, driven, frustrated, over wrought, time driven.</td>
<td>Tense, high energy, impatient, driven, frustrated, over wrought, time driven.</td>
</tr>
<tr>
<td>(<em>High Ergic Tension</em>)</td>
<td></td>
</tr>
</tbody>
</table>

**COMPETENCE OF THE TESTER**

The Cattell’s 16 PF questionnaire consists of 187 items of sixteen primary factors. The investigator after consulting the guide, the psychologists and experts about the nature of Cattell’s 16 PF questionnaire took extreme care to administer the same to the subjects of the study. Since it is a standardized questionnaire, the Cattell’s 16 PF questionnaire kit contains all relevant materials such as booklet, questionnaire, scoring key, scoring table and procedures for using the questionnaire. The validity and reliability of the tool are ascertained as it is a standardized questionnaire used in various research endeavours.
ADMINISTRATION OF THE TOOL AND COLLECTION OF DATA

The investigator obtained prior permission from the authorities to collect the data from the participants of All India Inter-University Chess Tournament conducted by Chhatrapati Sahu Ji Maharaj University, Kanpur, Uttar Pradesh, India. He met the subjects in person and necessary instructions regarding the administration of the questionnaire were given. Generally it takes about 35-50 minutes for the paper-and-pencil version of this questionnaire. However, the investigator did not give any time limit for completion of all 187 items in the questionnaire. No item was left out incomplete in the questionnaire by all the 180 participants of three groups. The completed questionnaire was collected from them immediately for calculating score of the personality factors.

The scoring of the completed questionnaire was done as per the instruction given in the manual of 16PF with the help of two scoring keys of Form- A. The raw scores obtained were converted into Sten scores (varied from 1 to 10) by using the conversion table given along with the manual.
STATISTICAL TECHNIQUE

The obtained Sten scores from the subjects have been statistically analyzed by using descriptive and differential analysis. Mean and standard deviation were calculated for descriptive analysis and the one way Analysis of variance (ANOVA) was used for differential analysis. Whenever ‘F’ ratio was found to be significant, the Scheffe’s test was applied as post-hoc test to determine the differences among the paired means. The level of confidence was fixed at .05 level for all the cases to test the hypothesis (Clarke and Clarke, 1976).