CHAPTER – III

METHOD AND PROCEDURE

In this Chapter the details regarding the design of the study, procedure adopted for collection of data, socio-psychological tests used, description of the tests used, and method used for analysis and interpretation of data/information, have been described.

DESIGN OF THE STUDY

This was a survey type case study which had been designed to investigate the contributions and achievements of Padam Shri Dhanraj Pillay as a sportsman, as a coach, as a sports promoter towards the promotion of hockey game in our country and also to study his life philosophy, sporting career, as well as to explore his special personality traits, attributes, and leadership qualities. Further, in this case study historical, biographical, analytical and interpretive methods were utilized to derive the relevant information and finalize the data. Attempt has been also been made to describe the personality profile of Sh. Dhanraj Pillay. For drawing conclusions, the obtained information and data was subjected to qualitative and quantitative statistical analysis.

COLLECTION OF DATA / INFORMATION

Data/Information for the present investigations were derived both from the primary as well as secondary sources.

PRIMARY SOURCES:

The original material/information were collected from the following primary sources:

1. Official records: To obtain authentic and verifiable information and data concerning Sh. Dhanraj Pillay, the investigator had personally visited the offices and places where Sh. Pillay had worked and was at present employed. Official
records like reports of tournaments played by Sh Dhanraj Pillay on behalf of Mahindra & Mahindra and at present Indian Airlines Mumbai hockey teams were collected. The investigator had also collected information and data from the official records like reports of committees meetings, annual reports, published material etc. The investigator physically verified the information and data related with the work done by him for promotion of hockey game.

2. Personal Records: Personal records pertaining to Sh. Dhanraj Pillay such as diploma, degree, honours, achievements, records, articles, books etc. were also perused by the investigator and desired information/facts were derived for analysis purpose. A list of his personal records has been mentioned in Appendix-A.

3. Interview of Sh. Dhanraj Pillay: Investigator personally contacted Sh. Dhanraj Pillay for the interview and conducted the interview with him several times, each time by taking prior appointment with him. The focus of the Interview was mainly around his family history, environment influence, childhood, education, sports participation, sporting career and achievements. Information regarding the days he had spent in his national camps, on internationals tours, his philosophy about his life, his contributions, honours & awards he had received and his efforts towards promotion of hockey game was also obtained. Some prominent coaches and sportspersons were also interviewed through questionnaire and valuable data regarding his contributions and achievements, sports career, personality, and leadership qualities of Sh. Dhanraj Pillay were collected.

4. Pictorial records: Various pictorial records relating to Sh. Dhanraj Pillay were perused and some of the photographs which were found relevant to different occasions were chosen as supporting documents for this study and have been inserted in Chapter IV of this thesis.

5. Published Material: Published material on the life and achievements of Sh. Dhanraj Pillay such as books, pamphlets, newspaper accounts were studied and information was derived and retained for the present investigation. A list of such published material is attached as Appendix-A to this thesis.
SECONDARY SOURCES

Interviews with other persons: During the course of investigation for this study, information and data relating to Sh. Dhanraj Pillay was collected through the process of interviews and survey of one hundred ten respondents. Interviews were conducted with Mrs. Andalamma Pillay (Dhanraj Pillay’s Mother), Sh. Ramesh Pillay (brother of Sh. Dhanraj Pillay) to obtain some more personal information regarding Sh. Dhanraj Pillay. Apart from them, Padam Shree Pargat Singh, Mr. Harinder Singh, coach of Sh. Dhanraj Pillay and some of his former associates namely Olympian Baljeet Singh Dhillon, Olympian Baljeet Singh Saini, Olympian Ramandeep Singh (Sports Director in Panjabi University Patiala), Mr. Clearance Lobbo (Ex Indian hockey coach), Rajinder Singh Junior (Ex Indian hockey coach) were also interviewed and valuable information was obtained from them through questionnaire. Investigator had also opportunity to meet some prominent hockey players, both from India as well from abroad, during PHL (Premier Hockey League) tournament conducted at Chandigarh from 5th Jan to 1st Feb 2006 and Opinion Rating Questionnaire was got filled up from them.

1. Survey: Survey technique was also used to obtain response from other selected eminent sportspersons, national & international level hockey players, Olympians, hockey coaches, and general public as well as from foreign hockey players who could not be interviewed personally as per the limitations of the study. For this purpose, Opinion Rating Questionnaires on Sh. Dhanraj Pillay were constructed with the help of subject experts and by referring to the questionnaires that were used in case studies that had already been conducted on various prominent sports personalities (Shokeen, 2000; Singh, 2002; Singh 2004; and Mann, 2005). One questionnaire (Appendix-I) comprised eighty statements relating to Sh. Dhanraj Pillay mainly on his life and achievements as a person, as a sportsperson, as a sports promoter, and as a hockey coach. The second questionnaire comprised forty statements relating to Sh. Dhanraj Pillay as a Trainee (Appendix-II). After follow-up through regular visits, reminds through phones and verbal persuasions, questionnaires were received back from the respondents (coaches, players, family members etc.). To estimate the strength of feelings of the persons who had responded to the questionnaire, a
four degree scale such as SA – Strongly Agree, A – Agree, DA – Disagree, and SDA – Strongly Disagree, was used. Scoring was done for all the obtained questionnaires and tabulation of data was carried out statementwise to facilitate the process of data analysis.

**SOCIO-PSYCHOLOGICAL TESTS USED**

In order to describe the personality profile of Sh. Dhanraj Pillay and to obtain information relating to his intellectual, mental, emotional, and social makeup, the following tests were used:

1. Mental Toughness Inventory,
2. Sevenfold Emotional Intelligence Scale,
3. Self Esteem Inventory, and

**DESCRIPTION OF THE TESTS**

1. **Mental Toughness Inventory**

   To assess the level of Sh. Dhanraj Pillay with regard to his mental toughness, he was requested to fill up the Mental Toughness Inventory developed by Middleton et al (2005). The authors of this Inventory had evaluated the psychometric (within-network) properties of the original version of MTI, with a view to refining the instrument for further use. The original version of the MTI measured twelve specific components of mental toughness along with one global mental toughness factor, with each factor being measured by 5-items (7 for Global Mental Toughness). The current research refined the MTI down from 5-items per factor to 3-items per factor. Analysis also revealed that the original Global Mental Toughness and Mental Self-Concept factors were highly related. Taking the best items from each and combining these into one factor substantially improved the fit of the data to the athlete responses. CFA demonstrated that the resulting MTI (i.e., 12 factors measured by 3-items each) provided a good fit to the data. Furthermore, multigroup CFA demonstrated that the MTI factor structure is invariant across sub-elite and elite athlete samples. The MTI has proven to be internally strong, demonstrating within-network validity. When the MTI model was related to key correlates, the
subscales correlated strongly with these measures and with the global mental toughness measure. From a between-network perspective, then, the MTI has proven itself across a few fundamental tests of validity. A particular strength of the MTI is its conceptual basis. The factors identified by Middleton et al (2004) have face validity, are intuitively appealing, and have support from recent qualitative research into mental toughness (Fourie & Potgieter, 2001). Furthermore, the current quantitative evaluation of the MTI demonstrates the strong psychometric properties. Taken together, the MTI represents a sound instrument, strong in theory, conceptualisation and internal properties. The scoring was done as per the instruction in the test manual. The inventory was provided with eight point scale ranging from False (not like me) at one end of the scale and True (like me) at the other end. The scoring was done in ascending order with False being given value of one mark and True being given eight marks. To obtain the overall score for the inventory, the scores obtained by Sh. Dhanraj Pillay against all the items of the inventory were summed up. The scores for the inventory ranged from minimum 36 to 288 being the maximum. Higher the score, higher the level of mental toughness.

2. Sevenfold Emotional Intelligence Scale

The Sevenfold Emotional Intelligence Scale (Khera et al, 2002) was administered to Sh. Dhanraj Pillay and it had questions pertaining to the following seven dimensions of emotional intelligence:-

i) Self-awareness and appraisal (SAA),
ii) Self-regulation and responsibility (SRR),
iii) Self-motivation (SM),
iv) Self-esteem and confidence (SEC),
v) Empathy and acceptance of others (EAO),
vi) Interpersonal relations (IPR), and
vii) Social Skills (SS).

Out of these seven dimensions of emotional intelligence, the four i.e. SAA, SRR, SM and SEC related to self whereas EAO, IPR and SS related to the others. The scale, however, was presented as a whole in the form of a single self-report questionnaire.
Reliability
The reliability of the scale had been computed through two methods i.e. split-half method and test-retest method. For split-half method the test was divided into two equivalent ‘halves’ and correlation was found for these ‘halves’. The reliability coefficient was determined by adopting odd – even procedure i.e. all odd-numbered items (like 1, 3, 5, 7, 9 etc.) constituted one part and all even-numbered items (like 2, 4, 6, 8, 10 etc.) constituted the other part of the test. Product movement (PM) correlation was computed to obtain the reliability of the half-test. On the basis of this half-test reliability, reliability for the whole test was estimated by using Spearman Brown prophecy formula. The self-correlation of the SFEIS was found to be .95, significant at .01 level. In the test-retest method the same test was administered to the same subjects twice after a gap of three weeks and the two sets of scores, when correlated, gave the value of the reliability coefficient, which was found to be .91, significant at .01 level.

Validity
The content validity had been computed through the item test correlation of each item in the second draft of the scale. The correlation coefficient were calculated for each item in all the seven dimensions with the total score the scale and with the total score of the respective dimensions. Results of the coefficient of correlation were found to have a value of more than .20, which was found to be satisfactory.

The scale provided five options i.e. always, mostly, sometimes, rarely and never, against each item. Sh. Dhanraj Pillay was asked to tick mark the appropriate option in the box provided for each option at the end of each statement. Out of the total 63 items the scale contained 32 items which were positive statements and 31 items which were negative statements. The scoring was done in ascending and descending orders as provided in the test manual for the five options. It was also provided in the Manual that the scores can be interpreted in the following broad range of scores:-
Scores | Category
--- | ---
63 to 135 | Low emotional intelligence,
137 to 272 | Average emotional intelligence, and
273 to 340 | High emotional intelligence

3 Self-Esteem Inventory

To measure the level of self-esteem of Sh. Dhanraj Pillay, the Self-Esteem Inventory (SEI) developed by Prasad and Thakur (1988) was administered to him. This test is a self-evaluation questionnaire and comprises two forms. In the first part of Inventory the subjects responded to the items regarding as to what they think of themselves and in the second part of inventory, they responded to the items concerning as to what the people who know them think about them. The test consisted of 29 items in the first part which were relating to personally perceived self esteem and 30 items in the second part which were related to socially perceived self-esteem. Against every item options were given in seven point scale which ranged from ‘totally correct’, to ‘totally wrong’. Responses made by the subjects were awarded in such a way that for socially desirable items they were given 7 to 1 scores for totally correct to totally wrong. For socially undesirable items, reverse pattern was followed.

Before administering the test, first of all the investigator instructed him as follows: Below are some statements in Part-I about how a person thinks about himself, and in Part-II the statements relate to your opinion as to how the other persons think about you. Read each statement carefully and decide your response out of one of the following seven options: totally correct, correct to a large extent, partially correct, uncertain, partially wrong, wrong to a large extent, totally wrong.

4 Sports Personality Scale

To assess the level of Sh. Dhanraj Pillay with regard to his sports personality, he was requested to fill up the Sports Personality Scale developed by Bala (2001). Bala (2001) developed a 90-item scale on the basis of survey, related literature on the subject and opinions of the subject experts. The scale
was administered to 100 male and female athletes from the major disciplines of sports from Chandigarh & Punjab. The subjects were aged between 16 to 24 years age who had played up to college, university, state & national level in their respective sports. The un-rotated factors do not generally represent useful scientific constructs are to be identified, it is necessary to carry and rotation of the factors. In light of this viewpoint the unrotated factor matrix was subjected to Varimax rotation because of its popularity and usefulness. The factor analysis yielded 13 factors specific to the study of Sports Personality. These factors include competitiveness and team cohesion, Adventure, Sociability, Status and Goal seeking, leadership calmness & Risk taking, Attentive focus and self confidence, anxiety, aggression, mental toughness, positive mental state, success & persistence. These factors are considered relevant for construction of Sports personality scale since the items falling under these factors have significant rotated factor loadings, which is evident from the results of factor analysis.

After the factor analysis a 37 items Sports Personality Scale was formulated. Using this scale the data was collected on 400 athletes. The validity & reliability of the scale was also established by using test and retest, and split-half technique.

Reliability of the Scale

To find the reliability of sports personality scale, the test-retest method and split-half method were used. 50 subjects were put on test on sports personality scale on different days with an interval of two days. The researcher herself conducted these tests on both the days. Data of 100 subjects was also computed by using split-half method. These subjects were selected randomly from 400 subjects listed to prepare the norms for sports personality scale. The results (scores) of each test items obtained on two different days were correlated by using the Pearson's product moment method of correlation. The results of test retest and split-half reliability tests are represented in table no 17 below:-
Reliability of Sports Personality Scale

<table>
<thead>
<tr>
<th>Scale</th>
<th>Test Retest 'r'</th>
<th>Split-half 'r'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports personality scale</td>
<td>0.75</td>
<td>0.81</td>
</tr>
</tbody>
</table>

The analysis of table no 17 proves that test i.e. Sports personality scale has shown consistency of performance which is evident from the value of coefficient of correlation.

Validity of the Scale

Construct Validity: Validity is one of the essential ingredients of a good test. In experimental research factors analysis has been used extensively to evaluate the studies that involve development of a measurement instrument. It has been found as an important tool to establish the variable relationships to identify their relevance to each other. The 61 items of this study were put through a factor analysis out of which final list of 37 items has emerged. As defined earlier the validity is the measures of the test in relation to the purpose for which it has been constructed.

In factor analysis, factor loading is an index to measure a particular factor. These are numerous factors that emerge during the analysis, but the main criteria to select an item for inclusion in the final test is that the selected item should have significance relevance to that factor. This is done on the basis of the rotated factors loadings were dropped from the final test. The items that had overlapped from the other factor were also not retained, since these were covered under their respected factors.

The validity of test was established by using the following procedure

1. Content validity was established by getting the responses of subjects and experts.
2. Construct validity was established by using the factor analysis technique.
3. Concurrent validity was established by comparing the studies against those factors of 16 P.F. which have been found related to sports performance.

The scoring was done on a five point scale ranging from 1 to 5 where 1 indicated strong disagreement with the statement, while 5 showed strong agreement. For the purpose of scoring, for 13 items in List-B (14, 19, 21, 22, 24, 25, 28, 30, 33, 34, 35, 36, and 37), strongly agree was awarded 1 mark and strongly disagree was awarded 5 marks. For the remaining 24 items in List-A, reverse scoring was followed. The total score of all items indicated the scores achieved by the subjects on the Sports Personality Scale.

**ANALYSIS & INTERPRETATION OF DATA/INFORMATION**

The data/information collected through primary & secondary sources were analyzed qualitatively which was facilitated through the use of external & internal criticism. Data collected by using opinion rating questionnaires was subjected to quantitative analysis for drawing statistical inferences.