

**CHAPTER-III  
PROCEDURE AND  
TECHNIQUES**

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### PROCEDURE AND TECHNIQUES

This chapter explains the method and procedure adopted in the study. The sequence of presentation follows:

- 3.1 Design of the Study
- 3.2 Sample
- 3.3 Tools and Their Description
- 3.4 Data Collection Procedure
- 3.5 Method of Data Analysis
- 3.6 Mode of Computation.

#### 3.1 Design of the Study

The study is descriptive in nature involving the measurement and comparison of the variables of personality traits, achievement-motivation, interests, intelligence, and academic achievement of athletes and non-athletes of Prince of Songkhla University, Thailand, from the freshmen students. The survey method has been used. The second part of the study is concerned with the computation of inter-correlationships among different variables separately for athletes and non-athletes with regard to the variables under study. The study has been delimited to the first year students of Prince of Songkhla University, Thailand, for the session 1990-91 only.

The groups consist of both male and female students from 11 faculties.

The variables of this study were:

1. Personality traits
2. Achievement-motivation
3. Interests
4. Intelligence
5. Academic achievement.

### 3.2 Population and Sample

The total population comprised 2,014 students from 11 faculties. The sample to which the questionnaires were administered to consist of athletes and non-athletes who formally attended the first year class of Prince of Songkhla University, Thailand. Break-up of the sample is presented in Table 3.1.

TABLE 3.1

Break-up of Faculty-wise and Sex-wise Distribution of Athletes and Non-athletes considered in the Sample (N = 364)

Code No.	Faculties	Athletes		Non-athletes		Total
		Male	Female	Male	Female	
1.	Engineering	10	-	31	-	41
2.	Education	4	2	9	23	38
3.	Medicine	6	1	15	17	39
4.	Humanities & Social Sciences	2	2	7	16	27
5.	Management Sciences	5	-	4	10	19
6.	Pharmacy	5	5	9	23	42
7.	Nursing	-	3	-	37	40
8.	Dentistry	2	-	9	20	31
9.	Sciences	2	1	2	17	22
10.	Natural Resources	6	1	16	14	37
11.	Science & Technology	1	1	11	15	28
Total		43	16	113	192	364

The sample for the present investigation was drawn randomly from the first year students from 11 faculties. The entire population consists of 364 including athletes and non-athletes who were taken-up as subjects in the present investigation.

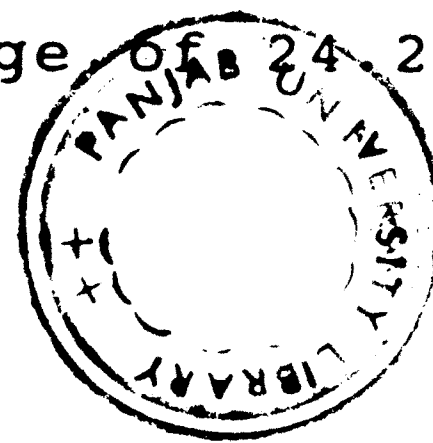
TABLE 3.2

Percentage of Athletes and Non-athletes for the Variable of Personality traits and Sex Based on the Total Sample (N = 364).

Group	Personality traits				Raw Total
	----- Extraversion -----		----- Neuroticism -----		
	Male	Female	Male	Female	
Athletes	28 (47.46)	11 (18.64)	9 (15.25)	11 (18.64)	59 (100.00)
Non-athletes	74 (24.26)	124 (40.66)	40 (13.11)	67 (21.97)	305 (100.00)
Total	102 (28.02)	135 (37.01)	49 (13.46)	78 (21.43)	364

Table 3.2 reveals that percentage of the athletes and non-athletes sex-wise and personality traits-wise. For extraversion, there are 28 male and 11 female athletes a percentages of 47.46 and 18.64, respectively whereas for neuroticism there are 9 male and 11 female athletes a percentage of 15.25 and 18.64, respectively.

For extraversion, there are 74 male and 124 female non-athletes showing the percentage of 24.26 and 40.66



respectively whereas for neuroticism there are 40 male and 67 female non-athletes with the percentage of 13.11 and 21.67, respectively.

TABLE 3.3

Personality-wise and Sex-wise Distribution of Athletes and Non-athletes in Different Faculties

Sr. No.	Faculty	Athletes				Non-athletes				Total
		Extraversion		Neuroticism		Extraversion		Neuroticism		
		Male	Female	Male	Female	Male	Female	Male	Female	
F-1	Engineering	5	-	5	-	23	-	8	-	41
F-2	Education	4	-	-	2	7	15	2	8	38
F-3	Medicine	2	1	-	4	8	13	7	4	39
F-4	Humanities & Social Sciences	1	1	1	1	6	11	1	5	27
F-5	Management Sciences	5	-	-	-	2	6	2	4	19
F-6	Pharmacy	3	2	2	3	2	17	7	6	42
F-7	Nursing	-	3	-	-	-	25	-	12	40
F-8	Dentistry	-	2	-	-	3	10	6	10	31
F-9	Sciences	2	-	-	1	1	9	1	8	22
F-10	Natural Resources	5	1	1	-	15	6	2	7	37
F-11	Science and Technology	1	1	-	-	7	12	4	3	28
TOTAL		28	11	9	11	74	124	40	67	364
		(7.69)	(3.02)	(2.47)	(3.02)	(20.32)	(36.06)	(10.98)	(18.40)	

Table 3.3 reveals the percentage of athletes and non-athletes personality-wise and sex-wise in different faculties. For athletes, extraversion there are 39 students as well as neuroticism there are 20 students, showing the percentages of 10.71 and 5.49, respectively, whereas for

non-athletes, extraversion there are 198 students. For neuroticism, there are 107 students, showing the percentages of 54.40 and 29.40, respectively.

### 3.3 Tools and Their Description

The present research study required the collection of data from the sample with respect to their

1. Personality traits
2. Achievement-motivation
3. Interests
4. Intelligence
5. Academic achievement

The following tools were used in order to collect the aforementioned data pertinent to the investigation at hand. They are presented below :

- 1) Eysenck Personality Inventory by H.J.E. Eysenck and B.G.E. Eysenck (1959).
- 2) Deo-Mohan Projective Test of Achievement-Motivation (nAch) by Pratibha Deo and Asha Mohan (1986).
- 3) Thurstone Interest schedule by L.L. Thurstone (1948).
- 4) Raven's Standard Progressive Matrices by J.C. Raven (1958).
- 5) Academic Achievement of each athlete and non-athlete was taken as a measure of academic achievement by Grade Point Average (GPA) from

Registration Records of Prince of Songkhla  
University of 1990.

The following contains the description of tools :

### **3.3.1 Eysenck Personality Inventory**

Eysenck Personality Inventory (E.P.I., 1959) is the development of Maudsley Personality Inventory (M.P.I.). The original MPI was a rough and ready measure of Neuroticism and Extraversion. Eysenck Personality Inventory has been constructed on the basis of the techniques of the items analysis and factor analysis (Eysenck, 1959) and it modified from MPI which 57 statements to be responded in "Yes" or "No". Out of these, 9 items help in measuring the lie scores, 24 items are used to measure extraversion and the rest 24 items are used to measure neuroticism.

#### **3.3.1.1 Neuroticism**

It is the second major dimension of personality deduced by Eysenck (1947). The dimension of Neuroticism is association with autonomic drive (Spence, 1964 and Eysenck, 1967). High N scores are indicative of emotional ability and over reactivity. High scoring individuals tend to be emotionally over responsive and have difficulties in returning to normal state after emotional experience. Such individuals frequently complain of vague somatic upsets of minor kind such as headaches, digestive troubles, insomnia backaches, etc. and report many worries and other

disagreeable feelings. Such individuals are pre-disposed, develop neurotic disorders under stress but such dispositions should not be confused with actual nervous breakdown. A person may score high on N while functioning adequately in work, sex, family and society spheres. The explanation of Neuroticism is taken to be neurophysiological.

#### 3.3.1.2 **Extraversion**

High E scores on the EPI are indicative of extraversion. On the descriptive side, Eysenck (1957, 1959), deduced the concept of I/E from the nostalgia categories based on Janet's and Jung's (1923) views and supported by Hildec Brand's study (1953). According to Eysenck and Eysenck (1968), 'the typical extravert is sociable, likes parties, has many friends, needs to have people to talk to, and does not like reading or studying by himself. He craves excitement, takes chances, often sticks his neck out, acts on the spur of the moment and - is generally an impulsive individual. He is fond of practical jokes, always has a ready answer and generally likes change. He is carefree, easy-going, optimistic, and likes to "laugh and be merry". He prefers to keep moving and doing things, tends to be aggressive and lose his temper quickly. His feelings are not kept under tight control and he is not always a reliable person. The typical introvert is quite, retiring sort of a person, introspective, fond of books rather than people. He is reserved and distant, except to intimate friends. He



tends to plan ahead. "Looks before he leaps" and distrusts the impulse of the moment. He does not like excitement, takes matters of everyday life with proper seriousness, and likes well-ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards.

#### **3.3.1.3 Reliability of the Scales**

Both split - half and Kuder - Richardson reliability coefficients have been calculated many samples. For the Neuroticism scale, these values nearly all lie between .85, and .90; for the Extraversion scale, they lie between .75 and .85, with the majority above .80. Retest reliabilities are available only on about 100 cases; they are .83 and .81 respectively. As regards the short scale, split-half reliabilities on a quota sample of 2,000 men and women were .80 and .72.

#### **3.3.2 Deo-Mohan Projective test of Achievement-Motivation (1986)**

The study of motivation has gained importance from early fifties with the efforts of McClelland and his associates at Wesleyan University, U.S.A. The term motivation refers to any organismic state that mobilizes activity which is in same sense selective or directive with respect to the environment (New Comb, 1964). The achievement-motivation which is the acquired tendency and

one of the most important social needs, has been defined by McClelland and his associates (1953) and also by researchers such as Decharms (1968) as a disposition to strive for success in competition with some standard of excellence set by the individual. Motive to achieve requires an act of some norm of excellence, long-term involvement and unique accomplishment. These are criteria set by McClelland and his associates (1953). It is further explained by Atkinson (1958) that the aim of motive defines the kind of satisfaction that is sought e.g., pride in accomplishment- a positive affective relationship with another person or non-attainment of desired goal state is accompanied by feelings of dissatisfaction. In fact, this is one of the most important manifest social needs and personality variables enlisted by Murray (1944) distinguish as variables of personality.

Among the manifest needs listed by him, n-Ach has been described, as the desire or tendency to do things as rapidly and/or as well as possible.

#### **3.2.2.1 Characteristics of Achievement-Motivation**

Heckhausen (1967) explains that the standard of excellence, which is one of the criteria of achievement-motivation, represents a classification of alternatives: passed-failed, good-bad and so on. It may be task-related, e.g. degree of perfection as a result of performance, or self-related e.g. comparison with one's own earlier

achievements, or other-related e.g. comparison with achievements of others as in competition. Finger (1966) investigated some characteristics of academic-motivation which is an area in achievement-motivation in general such as persistence (work success) planning (time orientation), self-control, deliberateness (morality) which are present usually in high motivation individuals and lack in low motivation people. Besides these, personal responsibility risk taking, level of aspiration, innovating activity and vocational goals may be considered as features of achievement-motivation.

#### **3.2.2.2 Reliability of the Scale**

Test-retest method was applied to obtain the reliability coefficient of the scale. Taking different sets of sample, the administration of the scale was repeated on several occasions. The results are given ( $r = .69, .67, .78$ ) significant at .01 of level. These coefficients of reliability are sufficiently high and the scale can be considered as reliable for use. Smith (1979) computed a split-half reliability coefficient of .56 for his 10 items quick measure of achievement-motivation.

#### **3.3.2.3. Validity of the Scale**

As far as the validity of the scale is concerned, in the first instance, the item validity established by the high-low discrimination method was accepted as the validity of the whole measure. Besides, the scale was also used for

validating the projective test of achievement-motivation. The coefficient of correlation between the scale and the projective test was observed to be .04 which speaks for the validity of the scale also, the validity being of the concurrent nature.

Finally, the scale scores were also correlated with the scores obtained by administering the Aberdeen Academic Motivation Inventory of Entwistle (1968) yielding a coefficient of correlation as .75 for a mixed sample of 93. This correlation is high enough to establish the validity of the scale. Regarding the  $r$  of .54 between the scale and projective test, McClelland (1958) explains that self-descriptive and projective measure are usually not correlating high with each other. Even Carney (1966) observed that questionnaire measures correlated poorly with McClelland's projective measures. These explanations support the results of present scale of achievement-motivation to be sufficiently valid for use for measuring achievement-motivation.

### **3.3.3. Thurstone Interest Schedule (Thurstone, 1948)**

The Thurstone Interest Schedule is a check list by which a person can systematically clarify his understanding of vocational interests. It is designed as counselling instrument to be used in situations in which the client-counsellor relationship is such that straightforward and honest expression of choice can be expected. It is not a

test and its purpose is not disguised. Among its features are brevity and ease of scoring. In the judgement of the author, it is acceptable for use at the secondary school level and above, also with adults out of school.

This vocational interest schedule requires less than ten minutes of the subjects' time. It gives a profile of ten scores. The scoring requires pencils and takes only two or three minutes.

#### **3.3.3.1 Reliability**

Because of the brevity of this schedule, the question of reliability of the scores is naturally a first consideration. Reliability coefficients were computed for 200 schedules by the split-half method. Pearson correlation coefficients were first computed for corresponding rows and columns. Reliability coefficient for the ten scores are shown above 90. The correlation between the ten scores are listed. The highest correlations are computation-business (.57) business-executive (.64); Executive-Persuasive (.68). This was a group of 200 men, all high school graduates. The correlations of this table could take widely different values in other groups of subjects.

#### **3.3.4 Standard Progressive Matrices (SPM) Raven, 1958)**

The standard Progressive Matrices, sets A,B,C,D, and E is a test of person's capacity at the time of the test to apprehend meaningless figures presented for his observation,

to see the relation between parts of the figure and conceive the nature of the figure, complete, each system of relations presented, and by so doing, develop a systematic method of reasoning.

The scale consists of 60 problems divided into 5 sets of 12 each. In each set, the first problem is as nearly as possible self-evident. The problems which follow become progressively more difficult. The 5 sets provide 5 opportunities for grasping the method and 5 progressive assessments of a person's capacity for intellectual activity.

#### **3.3.4.1 Validity**

Validity of the progressive matrices test has been studied in a variety of usual ways. When the Stanford-Binet Test was used as the Criterion, correlations varied from .50 to .91. Most of the coefficients of correlation with these 2 widely used criteria were in the range of .60 to .70.

The test correlates also with the educational achievement as do many group tests (verbal and non-verbal) but no as high as the Stanford-Binet and the WISC.

#### **3.3.4.2 Reliability**

Numerous reliability use one style coefficients reported by Raven vary from the low .80 to the low .90. Coefficients reported by other investigators using the split-half method range from .70 to .90. The differences in correlation are attributable to differences in the

constitution of the groups, age groups, mean and range of ability, number in the sample, socio-economic and educational levels. The split-half coefficients are on the whole creditable under the circumstances. The test-retest reliability coefficients, however, are appreciably lower for scores of the youngest children (below 7) although with older children and adults the test-retest coefficients vary within approximately the same range as those found by the split half method.

The differential Aptitude Tests were developed to provide an integrated, scientific and well-standardized procedure for measuring the abilities of boys and girls in grades eight to twelve for purposes of educational and vocational guidance. While the tests were constructed primarily for use in the junior and senior high schools, they may also be used in the educational and vocational counselling of young adults out of school and in the selection of applications for employment. They were designed to meet expressed needs of guidance counsellors and counselling psychologists whose advice and ideas were sought in planning for a battery which would meet rigorous standards and be practical for day-by-day use in schools, social agencies and business organisations.

#### **3.3.5 Academic Achievement**

The criterion for measuring academic achievement of each athlete and non-athlete, scores were taken as a measure

of academic achievement by Grade Point Average (GPA), from the Registration Records of Prince of Songkhla University for the year 1990.

#### 3.4 Data Collection Procedure

The data pertaining to the present investigation were collected with the help of the Deans and Lecturers in the respective faculties. Each questionnaire had written note which helped to solicit co-operation from the students. During the actual collection of the data, the investigator went to each class and with the help of the lecturers, divided the students into athlete and non-athlete groups. There he administered the questionnaires. All the tools were time-bound, so the investigator fixed the time for each questionnaire and the students were advised to start another questionnaire. Whenever, the time limit for one was over. All questionnaires were completed in about 3 hours, meaning thereby that each questionnaire took about 45 minutes. It took one day to collect data from one faculty.

Thus, the total time for collection of data from the 11 faculties was 11 days. Finally, the investigator collected all the response sheets and took them to his own office in the Department of Physical Education of the same University of Pattani Campus.



### 3.5 **Method of Data Analysis**

The analysis of the data was made possible by employing different statistical techniques. In order to examine the scores of the different groups under study on the various variables, means, S.D., t-test were employed. To see the relationship among the various variables, the intercorrelation matrix was used. Analysis of variance (ANOVA) used to compare the different groups and sub-groups of subjects on a certain set-scores.

### 3.6 **Mode of Computation**

All statistical calculations and analyses were made with assistance of computer in the Computer Centre of Panjab University, Chandigarh -160014, India.