CHAPTER II

THE PROCEDURE
In order to obtain reliable, valid, dependable and unassailable results in a correlational study like the present one, it becomes imperative to select the sample methodically, to construct and standardize the tools scientifically, to administer reliable and valid tools under conditions essential for the administration of psychological tests, to analyse the obtained data systematically and prudently and to draw inferences and conclusions carefully and sincerely.

A. SAMPLE

The chief purpose of the present study was to study interrelationship among Vocational Anxiety, General Anxiety, Creative Thinking and Teaching Success. The investigator proposed to determine how each one of these variables is related to the remaining three variables. Regarding the sample population, there were two options before the investigator, that is, he could either select in-service teachers or teacher-trainees to constitute the sample of the study. The investigator decided to select teacher-trainees for the purpose of the present study because they are available in large groups at minimum number of places. Moreover, it is comparatively very easy to motivate them to take psychological tests, whereas it is difficult to prepare in-service teachers for this type of tests. Besides, the in-service teachers differ very widely from one another in respect of age, teaching experience, academic qualifications etc. etc. Moreover,
The organisational climate too, differs from school to school which also affects teaching competence of a teacher to a considerable extent. Therefore, the investigator thought it advisable to delimit the present study to teacher trainees only.

The investigator further decided to delimit his study to teacher trainees studying in Teachers' Training Colleges affiliated to only one university in Panjab, that is, Guru Nanak University, Amritsar. There are seven such colleges under the jurisdiction of this university and about 1200 student teachers were undergoing teachers' training in these colleges during the academic year 1971-1972. Out of these seven colleges, one college is being run by the State Government and the remaining six colleges are being run by Private Bodies, two colleges are exclusively meant for women teacher-trainees, whereas all other colleges are co-educational. The number of men and women student teachers was almost equal in a total of 1200 students. The investigator decided to select 300 student teachers (150 males and 150 females) from three colleges. It was further decided to select 50 teacher trainees from the Government College and 250 student teachers from Non-Government Colleges. In the total population, 200 and 1000 student teachers were on the rolls of the Govt. College and Non-Govt. Colleges respectively. Thus, every effort was made to make the selected sample true representative of the parameter. Three hundred trainees were selected as sample population through the method of simple random assignment. The students are admitted to these colleges keeping in view the prescribed guidelines presented by the university. Therefore, teacher trainees studying in different colleges are of almost equal standard.
This implies that students taken from any college constitute a random sample. The selected sample both in its nature and quantity was considered to be most suitable for the purpose of the present study. Any other characteristic of the population was not kept in view as it was assumed that all other characteristics were held constant. Simple random choice was also preferred because it requires only a minimum knowledge of the population in advance, and it is free from errors of classification.

After settling the question of sample selection, the investigator made further moves in the direction of data collection, analysis of data etc. Steps in carrying out the research design are listed below in the order in which these were used:

B. CONSTRUCTION AND STANDARDISATION OF A SCALE OF VOCATIONAL ANXIETY

Vocational anxiety was defined as the anxiety experienced by teacher trainees with reference to their present educational status and future employment or professional status. With a view to gain insight into the problems, fears, worries, adjustmental hazards and emotional instability of student teachers, the investigator held detailed discussions with about fifteen student teachers. These formal as well as informal discussions helped the investigator in constructing items for the vocational anxiety scale. While constructing items, due help was taken from MMPI, MPI, Sinha Anxiety Scale, Cattel's IPAT Anxiety Questionnaire and Dutt Personality Inventory. Thus, an experimental draft of the scale having 60 items was prepared. It was administered to about
150 student teachers for performing item-analysis which was done by the method of upper and lower thirds. The final form of the scale contained only 44 items as sixteen items were rejected because of low discriminative power. The final form of the scale was administered to 300 teacher trainees to establish its reliability and validity.

C. DEVELOPMENT OF TEST OF CREATIVE THINKING

The investigator developed about 20 activities and administered them to selected teacher trainees to know their suitability and applicability. As a consequence of these trials, twelve items or activities were finally selected. These were then mailed to Dr. E. Paul Torrance for his comments. He found eleven of the items suitable and further in order to reduce the length of the test, he suggested seven most suitable items. The test comprising these seven items was administered to 200 teacher trainees to develop scoring guides. One hundred and eighty scored tests were selected for item analysis which was again done by the method of upper and lower thirds. Product-moment coefficients of correlation between scores on each item and scores on the total test were also computed to determine internal consistency of the test and validity of each item. Reliability and validity of the final form of the test were established.

D. GENERAL ANXIETY

The investigator had to select some appropriate measure of general anxiety. He made a critical survey of some of the available tests of anxiety, namely, Dutt Personality Inventory,
Sinha Anxiety Scale, Indian Adaptation of Cattell's IPAT Anxiety Questionnaire and Taylor's manifest Anxiety scale. He finally decided to select the Dutta Personality Inventory for the purpose of the present study because of the following reasons:

i) It has been widely used in master and doctoral studies in India.

ii) It is a highly reliable and valid instrument to measure general anxiety. Study after study has established its reliability and validity.

iii) It was originally standardized on a sample of teacher trainees studying in various teachers' Training Colleges of Panjab. The sample of the present investigation also consisted of teacher trainees studying in the Training Colleges of the same State. Therefore, its use in the present research was thought to be most appropriate.

E. TEACHING SUCCESS

Evaluating the effectiveness of teachers by observing their performance in classrooms is decidedly a better method of assessing teaching skill than all other methods. The investigator decided to use this method in preference to ratings by principals, students, and fellow teachers or observing student gains. But it was not possible for the investigator to observe the lessons of all the members of the sample personally. Therefore, he decided to make use of existing tests of teaching skill in the present investigation. The university regulations require every teacher trainee to deliver two discussion lessons during the
course of his or her training and two lessons in the final skill in teaching examination which is held by the university at the end of the training period. The discussion lessons are evaluated by the subject-specialists of the college, whereas the final lessons are evaluated by internal and external examiners appointed by the university. Thus, four lessons delivered by each trainee are evaluated by supervisors and university examiners. With a view to find relationship between the awards of discussion lessons and final lessons, product-moment coefficient of correlation between the two types of awards was worked out which came out to be high and positive. Thus, it was decided to combine the four awards of each trainee and then to compute one average score in respect of each trainee separately.

F. COLLECTION OF DATA

The tests of vocational anxiety, general anxiety and creative thinking were administered personally by the investigator under conditions essential for administration of psychological tests. The tests were administered in 8 groups of 30 to 40 subjects each and the three tests were administered to each group on three different days. In the beginning of each testing session, the investigator established rapport with the subjects by explaining to them that the purpose of the study and by assuring them that their responses would be kept strictly confidential and would not be used for any purpose other than that of academic research. The awards for discussion lessons and university examination lessons were collected from the colleges.
In the case of Butler Personality Inventory and Vocational Anxiety Scale, it was decided arbitrarily to assign a weight of 2 to a response indicative of presence of the symptom, a weight of zero to a response indicative of absence of the symptom and a weight of one to a non-committal response. Thus, the maximum score on Vocational Anxiety Scale and Butler Personality Inventory can be 88 (44 items) and 130 (65 items) respectively and the minimum score on both the tests can be zero. In the case of the test of creative thinking, a scorable response was assigned fluency score of one, an elaborated response was assigned fluency score of two and a response given by less than 5% of the teacher trainees constituting standardization sample was assigned an additional originality score of one. Besides, flexibility score on an item was determined by counting the number of categories left after striking out the duplications.

II. ANALYSIS AND INTERPRETATION OF DATA

The tests were administered to about 300 teacher trainees. As the three tests were administered on three different days, therefore, all the subjects could not take all the three tests. Moreover, teaching success scores in case of a few subjects were not available either because of absence of the subjects at the university examination or because of result withheld by the university. Thus, all the four scores were available in respect of only 230 subjects. A total of 220 (110 males and 110 females) subjects was selected for final study for reasons of convenience.
The data were processed statistically as under:

a) The three measures of central tendency (Mean, Median and Mode) and standard deviation of VA, GA, CT and TS scores were calculated in respect of total sample. The measures of divergence (Skewness, Kurtosis) were computed to ascertain the normality or non-normality of the distribution of these scores.

b) The male group was compared with the female group to find the difference in the mean performance and variability in respect of the four variables under study. The t test was applied to determine the significance of differences between Means and SD's of VA, GA, CT and TS scores.

c) In case of linear relationship, a coefficient of correlation is the most appropriate measure of relationship between two variables. Thus product-moment coefficient of correlation was calculated to find out relationship between VA and GA; VA and CT; VA and TS; GA and CT; GA and TS; CT and TS scores. The significance of all the obtained coefficients of correlation was tested by proposing null hypothesis.

d) In case, the relationship between any two variables appeared to be curvilinear, correlation ratio (eta coefficient) was calculated and F test was applied to confirm the linearity or non-linearity of relationship. The significance of obtained eta coefficients was tested and interpretations were given.

e) The VA, GA, CT and TS scores were grouped into five bigger groups by increasing the length of class intervals. In the case of each variable, the mean scores on remaining three
variables for each group were calculated and the significance of differences between means of various sub-groups was tested.

f) The high and low groups on all the found variables were formed. It was decided to have 10-score above and below the sample mean as cutting points for the constitution of high and low groups. In case of each variable, the mean scores of high and low groups on the remaining three variables were calculated and the significance of difference between means was tested.

g) Analysis of variance was performed in order to ascertain the extent to which teaching success can be viewed as a function of creative thinking or vocational anxiety or general anxiety or an interaction of any two of these three variables.

Thus, by following the statistical procedures outlined above, the investigator made an attempt to find answers to the questions posed in the first chapter of this dissertation. He also tried to compare the findings of the present study with the findings of some other similar studies. The detailed account of the execution of the study is incorporated in the chapters which follow.