CHAPTER III

PROBLEM AND HYPOTHESES

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CHAPTER

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       *   STATEMENT OF THE PROBLEM
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In this chapter, the present problem, its scope, hypotheses, limitations, purpose, importance and need are explained.

3.1 TITLE OF THE PROBLEM

" A Study of Certain Factors Associated with Academic Achievement at the First Year Degree Examination".

3.2 DEFINITION OF CERTAIN TERMS USED

(a) Factor

The meaning of factor as given by English and English (1962) is "any one of several conditions which together cause an event" or "anything that has an influence". Factor is taken as "condition" that can be definable operationally -

may be an intellectual quality or personality quality that can be measured with accuracy. The 'certain' factors covered in the study are (1) Intelligence, (2) Need for Achievement, (3) Personality, and (4) Home environment.

(b) Academic Achievement

Achievement is a term used to denote "the degree or level of success attained" in some general or specified area (English and English, 1962)."Degree or level of success" is measured, in this study, in terms of marks obtained in the examination. In this study, the marks obtained in the subjects, formally taught in the college, at the examination conducted by the University are taken as "academic achievement".

(c) First Year Degree Examination

In S.V. University, Tirupati, Andhra Pradesh, wherefrom the sample has been drawn for the study, the duration of the degree course (B.A., B.Sc., B.Com.) is three years - commonly known as Three Year Degree Course. Students who passed PUC (one year course), Intermediate or Higher Secondary Examination are admitted to the Three Year Degree Course. In the Three Year Degree Course (B.A., B.Sc.), every student has to read two languages - English and Telugu or Hindi or Urdu or Tamil or Sanskrit and another optional

group comprising three subjects such as (1) Mathematics, Physics, Chemistry, (2) Chemistry, Botany, Zoology, (3) Physics, Chemistry, Zoology, (4) Mathematics, Physics, Geology, (5) Mathematics, Economics, Statistics, (6) History, Economics, Politics, (7) History, Economics, Advanced Language (Telugu, English, Hindi.......), (8) History, Economics, Psychology, etc. At the end of every year (I Year, II Year, III Year), Public Examination is held by the University. In the first and second years, Languages and optional group are studied. In the Third Year only optional group is studied. At the end of the First Year, the student is examined in the subjects taught during the year, i.e. one paper in each subject - English, Telugu (or Hindi, Urdu, Tamil), one optional group comprising three subjects (e.g. Mathematics, Physics, Chemistry). The First Year Degree Examination covered by the study is the examination held in March-April 1968. Hence, in this study, the marks obtained at the First Year Degree Examination (Three Year Degree Course) held in March-April, 1968 are taken as academic achievement.

(d) Definition of the Factors or
    Variables used in the Study

The four variables used in the study, namely,
(1) Intelligence, (2) Need for Achievement (nAch),
(3) Personality, and (4) Home Environment are also defined.

Intelligence : The word 'intelligence' is coined
by Ceciro. It is derived from 'inter' - in between, 'legre'
- to read, What is in English known as "reading in between
the lines". Intelligence has been defined in different ways
and there is no agreement among psychologists or educationists
with regard to definition of intelligence. The investigator
himself has listed out forty definitions of intelligence
(Reddy, 1964). Some of the definitions are given hereunder :

1. Binet's Conception : "Binet's conception of
intelligence consisted of three characteristics of the
thought process : (a) its tendency to take and maintain a
definite direction, (b) the capacity to make adaptations
for the purpose of attaining a desired end, and (c) the
power of auto-criticism."

2. Ebbinghaus : Intellectual ability consists in the
elaboration of a whole into its worth and meaning by means
of many-sided combination, correction and completion of
numerous kindred associations. It is an activity of
combination.

3. Stern : It is the general capacity of an individual
consciously to adjust his thinking to new requirements; it
is general adaptability to new problems and conditions of life.

4. Haggerty : Intelligence is a practical concept
connoting a group of complex process traditionally defined
in systematic psychologies as sensation, perception,

association, memory, imagination, discrimination, judgment, and reasoning.

5. <u>Thorndike</u> : Intelligence is the power of good responses from the point of view of truth.

6. <u>Thurstone</u> : Intelligence is that which can be judged by the degree of incompleteness of the alternatives in the trial and error life of the individual.

7. <u>Buckingham</u> : Intelligence is the ability of acting effectively under given conditions.

8. <u>Terman</u> : An individual is intelligent in proportion as he is able to carry on abstract thinking.

9. <u>Colvin</u> : Intelligence is a group of innate capacities by virtue of which the individual is capable of learning in a greater or less degree in terms of those innate capacities with which he is endowed.

10. <u>Burt</u> : It is the power of readjustment to relatively novel situations by organising new psycho-physical combinations.

<u>Need for Achievement</u> : Need for achievement is the concern or the urge to achieve more to excel others. It is competition with standard of excellence in an attempt to excel. Murray (1963) defines nAchievement (achievement attitude) as "To overcome obstacles, to exercise power, to

strive to do something difficult as well and as quickly as possible. This is an elementary Ego need which alone may prompt any action or be fused with any other need". Edwards (1954, p.11) defines need achievement as "To do one's best, to be successful, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better than others, to write a great novel or play."

Personality : There is no agreement with regard to the definition of personality. Personality is one of the most abstract words and its connotative significance is very broad and its denotative significance is negligible. Personality is derived from the word 'Persona'. Persona originally denoted the theatrical mask first used in Greek drama and adopted about a hundred years before Christ by Roman players. The concept changed from time to time. As Max Muller puts it, "But this word persona has rolled along with wonderful bounds, striking right and left, suggesting new thoughts, stirring up clouds of controversy, and occupying to the present day a prominent place in all discussions on theology and philosophy, though few only of those who use it know how it came to be there" - Allport (1937, p.24)

Allport (1937) quoted several definitions of personality based on theological meanings, philosophical meanings, juristic meanings, sociological meanings, biological meanings, psychological meanings. The definitons under 'psychological meanings' are grouped, (1) omnibus definitions, (2) Integrative and configurational definitions, (3) hierarchical definitions, (4) definitions in terms of adjustment, and (5) definitions in terms of distinctiveness. Some of the definitions are given hereunder :

Personality is based on the integration of all the traits which determine the role and status of the person. Personality might, therefore, be defined as social effectiveness - Burgess, E.W. (a definition based on sociological meanings). Personality is a man's social stimulus value. It is the responses made by others to the individual as a stimulus that define his personality - May (a bio~~logical~~ social definition). Personality is the sum-total of all the biological innate dispositions, impulses, tendencies, appetites, and instincts of the individual, and the acquired dispositions and tendencies acquired by experience - Prince (omnibus definitions). Personality is the entire organisation of a human being at any stage of his development - Warren and Carmichael (Integrative and configurational definitions). Personality is the integration of those systems of habits that represent an individual's characteristics adjustments to his environment - Kemp (definitions in terms of adjustment). Personality is the organized system,

or

the functioning whole unity of habits, dispositions and sentiments that mark off any one member of a group as being different from any other member of the same group - Schoen (definitions in terms of distinctiveness).

At the end, Allport (1937, p.48) defines personality as "the dynamic organization within the individual of those psycho physical

psychological systems that determine his unique adjustments to his environment". For Eysenck, "personality is the more or less stable and enduring organization of a person's character, temperament, intellect and physique which determines his unique adjustment to the environment", (quoted by Das R.S., 1957). Guilford (1959, pp. 5-6) defines it as a person's 'unique pattern of traits', while trait is 'any relatively enduring way in which a person differs from others'. According to Cattell, the goal of psychology and personality theory is to formulate laws which enable us to predict behaviour under many conditions. His definition is based on prediction. To him, "personality is that which permits a prediction of what a person will do in a given situation" - (Cattell, 1950, p.2).

Home Environment : The Home Environment covered by the study includes, besides socio-economic status, four aspects of the home, namely, (1) Parental value on education and academic achievement - the value the parents attach to education and achievement, (2) Emotional climate in the home -

the worrying conditions in the home, (3) Parental encourage-
ment - different types of encouragement parents give to the
children in the process of education, and (4) Educational
facilities - facilities in terms of room for study, guidance,
etc. These aspects are described in greater detail in
Chapter IV.

3.3 SCOPE OF THE PROBLEM

There are several factors related to academic achieve-
ment. In the present study, the relationships between
academic achievement and four broad factors relating to
student are examined. The four broad factors or variables
are - (1) Home environment, (2) Need for achievement,
(3) Personality, (4) Intelligence. Home environment comprises
of five aspects of home environment. The test employed for
measuring personality, namely, 16 P.F. Questionnaire gives
scores on 16 factors of personality including intelligence
as one of the sixteen factors. Since separate test is
employed for measuring intelligence, the factor B of 16 P.F.
which measures intelligence is not considered. Thus, the
four broad factors/variables yield 23 variables as shown
below :

I. Home Variables : 1. Parental value on education and
                        academic achievement.

                     2. Emotional climate in the home.

3. Parental encouragement.

4. Educational facilities in the home.

5. Socio-economic status

II. Need for   : 6. Need for achievement
    Achievement

III. Intelligence : 7. Intelligence

IV. Personality : 8. Personality Factor A

                    9. Personality Factor C

                 10. Personality Factor E

                 11. Personality Factor F

                 12. Personality Factor G

                 13. Personality Factor H

                 14. Personality Factor I

                 15. Personality Factor L

                 16. Personality Factor M

                 17. Personality Factor N

                 18. Personality Factor O

                 19. Personality Factor Q1

                 20. Personality Factor Q2

                 21. Personality Factor Q3

                 22. Personality Factor Q4

The above twenty-two are the independent (predictor) variables in the study.

Academic achievement (marks obtained) may be in one subject or groups of subjects studied by the students. As

reported earlier, the degree class students (B.A., B.Sc.)
read (1) English, (2) Languages - Telugu or Hindi or Urdu
or Tamil or Sanskrit, and (3) an optional group consisting
of three subjects. The present study is confined to academic
achievement in (1) English, (2) Telugu, and three optional
groups, namely, (a) Mathematics, Physics and Chemistry,
(b) Chemistry, Botany, Zoology, (c) History, Economics,
Politics. In the case of females, achievement in English,
Telugu, and one optional group only *i.e.* Chemistry, Botany,
Zoology is covered. These groups are chosen because of the
popularity of the groups and availability of students in
these groups. Moreover, the Investigator expects differen-
tial factors related to achievement in these Arts and Science
groups of subjects. Thus, the following types of achievement
in different subjects or groups of subjects are considered :

1. Achievement in English - Males
2. Achievement in English - Females
3. Achievement in Telugu - Males
4. Achievement in Telugu - Females
5. Achievement in Mathematics - Males
6. Achievement in Physics - Males
7. Achievement in Chemistry - Males
8. Achievement in Chemistry - Females
9. Achievement in Botany - Males
10. Achievement in Botany - Females

11. Achievement in Zoology - Males

12. Achievement in Zoology - Females

13. Achievement in History - Males

14. Achievement in Economics - Males

15. Achievement in Politics - Males

16. Achievement in Languages - Males
    (Total marks in English
    and Telugu)

17. Achievement in Languages - Females
    (Total marks in English
    and Telugu)

18. Achievement in MPC Group - Males
    (Total marks in Mathematics,
    Physics and Chemistry)

19. Achievement in CBZ Group - Males
    (Total marks in Chemistry,
    Botany and Zoology)

20. Achievement in CBZ Group - Females
    (Total marks in Chemistry,
    Botany and Zoology)

21. Achievement in HPoEc Group - Males
    (Total marks in History,
    Politics and Economics)

22. Total achievement in all the subjects - Males

23. Total achievement in all the subjects - Females

The above twenty-three are the dependent (criterion) variables. In the present study the relationships of the twenty-two independent (predictor) variables (four broad variables - Home environment, Need for achievement, Intelligence, and Personality) with each of the twenty-three dependent (criterion) variables (achievement in different individual or groups of subjects) are examined.

The study attempts to provide answers to the following questions :

1. Is there any relationship between academic achievement in each subject or groups of subjects at the First Year Degree Examination, and (1) Intelligence, (2) Need for achievement, (3) Personality, and (4) Home environment of the students ?

2. If such relationship exists -

   (a) What are the variables significantly related to achievement in different subjects ?

   (b) Do they vary from one subject to the other ?

   (c) What is the extent of relationship between academic achievement and the said four variables ?

   (d) Are these variables related differentially to academic achievement in the same subject or groups of subjects ?

   (e) Is the same variable related differentially to achievement in different subjects or groups of subjects ?

3. (a) To what extent can academic achievement be predicted by the four variables put together ?

   (b) What is the relative contribution of each variable when acting along with others ?

   (c) Which are the potential predictors among them ?

   (d) Does the contribution made by the four variables put together vary from subject to subject ?

(e) Does the contribution of the same variable vary from subject to subject ?

(f) Do these variables contribute differentially to the prediction of achievement in the same subject ?

3.4 HYPOTHESES OF THE STUDY

The following are the hypotheses of the study :

1. There exists a positive relationship between academic achievement in each subject or groups of subjects at the First Year Degree Examination (23 types of achievement criteria) and (1) Intelligence, (2) Need for achievement, (3) Personality (15 factors), and (4) Home environment (5 aspects) - (Total 22 variables)

2. The variables significantly related to achievement differ from subject to subject.

3. The variables are related differentially to academic achievement in the same subject or groups of subjects. If we denote intelligence by I, Personality by P, Need for achievement by N, Home environment by H, Aaademic achievement in subjects 1, 2, 3, ... by S1, S2, S3, ... and coefficient of correlation by r, then

   (a) $rIS1$, $rPS1$, $rNS1$, $rHS1$ will differ from each other,

   (b) $rIS2$, $rPS2$, $rNS2$, $rHS2$ will differ from each other.

4. The same variable (I, P, N, H) is related differentially
to achievement in different subjects or groups of
subjects, that is -
(a) rIS1, rIS2, rIS3 will differ from each other, and
(b) rPS1, rPS2, rPS3 will differ from each other.

5. The sighificant predictors of achievement vary from
subject to subject.

6. The contribution of the four variables put together for
predicting academic achievement will be more-when
compared to the individual contribution of each variable.
If C denotes predictive contribution, then
C (I + P + N + H) S1 is greater than
CIS1, CPS1, CNS1, CHS1.

7. The contribution of the four variables put together
for predicting academic achievement varies from
achievement in one subject to the other
C (I + P + N + H) S1 is different from
.C (I + P + N + H) S2.

8. The contribution of the same variable for predicting
academic achievement varies from achievement in one
subject to the other. That is, CIS1, CIS2, CIS3 will
differ from each other, CNS1, CNS2, CNS3 will differ
from each other.

9. The contribution of the variables for predicting
   academic achievement in the same subject or groups
   of subjects varies from variable to variable
   CIS1, CNS1, CPS1, CHS1 will differ from each other,
   CIS2, CNS2, CPS2, CHS2 will differ from each other.

3.5 LIMITATIONS OF THE STUDY

The following are the limitations of the study :

1. In the **Three** Year Degree Course, examinations are
   held at the end of every year. In the present
   study, the variables are related to academic
   achievement at the First Year Examination only.
   That is, achievement at the Second and Third Year
   Examinations is not considered.

2. The sample for the study is drawn from the Govern-
   ment Arts and Science Colleges affiliated to S.V.
   University, Tirupati. It means aided colleges
   are not included in the study. This step is
   necessitated to avoid the effect of variations
   in the college environment.

3. The Government Arts and Science Colleges located
   at district head-quarters of the five districts,
   namely, Cuddapah, Kurnool, Anantapur, Chittoor,
   Nellore only are covered by the study. The colleges
   located in rural parts of the above districts are
   left untouched.

4. The variables related to achievement in this study pertains to student - his home environment, ~~his~~ ~~personality,~~ his intelligence, his need for achievement and his personality. Other variables relating to society, school, teachers that may have bearing on the academic achievement are not included in the study.

5. Besides English and Telugu, students at Degree Classes study a variety of optional groups. The present study is limited to three popular groups, namely, MPC (Mathematics, Physics and Chemistry), CBZ (Chemistry, Botany and Zoology), HPE$_c$ (History, Politics and Economics). The achievement in the other optional groups such as (1) Chemistry, Physics, Zoology, (2) Mathematics, Physics, Geology, (3) Physics, Chemistry, Geology, (4) Mathematics, Economics, Statistics, (5) History, Economics, Languages (Telugu or Hindi or English or Urdu or Tamil or Sanskrit), (6) History, Economics, Psychology or Philosophy, etc. are excluded from the study.

6. The study is limited to degree colleges only. The technical colleges - Engineering, Medical, Agricultural, etc. - are excluded from the study.

3.6 PURPOSE OF THE STUDY

The purposes of the study are :

1. To find out the relationship of the four variables pertaining to the student, namely, Intelligence, Personality, Need for achievement, and Home environment to his academic achievement.

2. To identify among them the variables that contribute more to academic achievement.

3. To study the differential contribution of the variables to academic achievement singly and jointly.

3.7 IMPORTANCE OF THE STUDY

1. The percentage of failures at the Degree Examinations in India has been very high - more than 50 - and, therefore, it is very important to identify the factors related to academic achievement.

2. The study attempts to throw light on the extent of relationship of home environment, personality, intelligence, and need for achievement to the academic achievement.

3. The study helps to choose variables for selection of students to colleges.

4. The study would help the Lecturers, Parents, administrators to understand the relative contribution of the variables to academic achievement.

5. The findings of the study may be helpful to improve the academic achievement which forms basis for admission to higher courses and for vocational choices.

6. The results of the study may enable to reduce high incidence of failures by providing suitable guidance services.

3.8 NEED FOR THE STUDY

1. In foreign countries there have been many studies pointing out the importance of one factor or the other for success at the college or school level. But in Indian context such studies, particularly related to college achievement, are limited and further studies are warranted.

2. The high percentage of failures at the Degree Examinations - more than 50 - urgently calls for studies to identify the correlates of academic achievement.

TABLE - 1 : Percentage of Failures at the Degree
Examination (B.A., B.Sc., and B.Com) of
S.V. University, Tirupati, Andhra Pradesh
during the Years 1964-1968.

Year	First year			Second Year			Third Year		
	BA.	B.Sc.	B.Com.	B.A.	B.Sc.	B.Com.	B.A.	B.Sc.	B.Com.
1964	62	63	71	51	47	40	57	62	36
1965	64	71	63	67	73	69	58	62	51
1966	58	54	48	69	71	58	54	65	35
1967	72	68	61	81	75	73	51	71	48
1968	77	68	72	78	74	69	54	73	55

Source : Registrar (1968)

3. The need for the study at S.V. University, Tirupati, is borne out by the large percentage of failures.at the First, Second and Third Year Degree Examinations. The results of the B.A., B.Sc. and B.Com. Degree Examinations held in the years 1964-1968 of the University indicate that the percentage of failures at B.A., B.Sc. and B.Com. Degree Examinations varies from 51 to 81, 47 to 75, and 35 to 72 respectively (Table No. 1).

In the next chapter, the tools selected or developed and used for measuring the four variables, namely, (1) Home environment, (2) Intelligence, (3) Need for achievement, and (4) Personality are discussed.