CHAPTER- III

PLAN AND PROCEDURE OF STUDY

3.1 INTRODUCTION

The review of researches in the context of the theoretical framework adopted for the study helps in deeper understanding of the problem and a definite direction to the objectives decided can be acquired through needed planning. However lofty the objectives may be, it requires a blue print, a guideline to proceed with so that maximum attainment of the pre decided objectives can be obtained.

Planning of a study that way refers to the methodology to be adopted with respect to representative sampling design, appropriate instrumentation and mode of efficient as well as economic data collection. It also concerns with selection of statistical technique which can provide scientific analysis and candid presentation of the result.

This chapter describes the plan and procedure of the study along with statement of the problem and terms operationalized.

3.2 STATEMENT OF THE PROBLEM

As stated in the preceding part of this report, the problem proposed for the study is as under :

PEER INFLUENCE AND EDUCATIONAL ASPIRATION OF SECONDARY SCHOOL STUDENTS : A STUDY IN RELATION TO THEIR ACADEMIC ACHIEVEMENT.

3·3. DEFINITION AND EXPLANATION OF THE TERMS USED IN THE STUDY

Various terms used in the study have been operational-ized in the following manner :

1. Peer-group : The term 'Peer-group' refers to a combination of interacting persons of approximately equal status and usually of about the same age range. In this study, peer-group implies to the class room peers only.

2. Peer-Influence : The influence of one's peers which is supposed to be measured through the degree of involvement in different activities which occur generally among class room peers in an academic
   setting.

3. Educational Aspiration : Aspiration means the goal set by the individual for himself in task which has intense personal significance for him. The term 'Educational Aspiration' denotes the goal-setting in the field of education. This goal-setting process, being dependent on past performances is considered to play a significant role in academic achievement.

4. Academic Achievement : Generally academic achieve-ment implies knowledge acquired and skills developed in school subjects, indicated by marks obtained in examination. In this study marks secured in selection examination for High School Leaving Certificate Examination is considered as an index of academic achievement.

5. Secondary school students :   Students of Class X
   (last year of secondary stage) in the age group of
   15 +, have been considered for the present study.

6. Academic Setting :   Generally setting implies a
   framework. The framework within which all the
   activities related to academic aspects are supposed
   to occur, has been termed as academic setting.
   Some major dimensions of academic setting taken
   into consideration for this study are - classwork,
   homework, library work, preparation for examination,
   relationship between teacher and students and
   participation in co-curricular activities.

3·4. MODEL OF THE STUDY

The long standing interest of the researchers
in different branches of social science inspires to
apply mathematical models in studying social phenomena,
"Model is the portion of the research in which the exact
relations as expected in the hypothesis are measured
and determined". To examine the relationship between
the variables is the first step in the analysis of
survey data. And survey is considered as a fundamental
instruments of sociological research.

Morris Rosenberg in his book "The logic of survey
analysis" has discussed three types of relationships
between two variables as : (1) Neither variable may
influence the other; such relationships are termed
symmetrical,

(2) Both variables may influence one another;
these are reciprocal relationships,

(3) One of the variables may influence the other; the term asymmetrical is applied to this type of relationship.

It is in the third type of relationship that the core of sociological analysis is to be found. Asymmetrical relationships propel one into the vital scientific area of causal analysis. Scientists are interested in explanation and understanding; prediction and control, and causation is quite often a component of scientific explanation.

The reason why sociology tends to focus on asymmetrical relationships is rooted in the nature of its subject matter. By its very nature sociology is concerned in the relationship of social experience to individual mental processes and acts. The asymmetrical relationship most commonly investigated in sociology is between a property as the independent variable and a disposition or act as the dependent variable. It is observed that a third variable may be introduced for a better understanding of this two variable relationship.

Attempts have been made to establish the direction of causal relationships by means of mathematical models. Three categories of mathematical models are commonly prevalent in social science literature. Functional or theoretical model having theoretical function holds the view of analysing and explaining a particular notion. Thus if a functional relationship between a response and the independent variables is known, a functional model can be built on survey data.

The second model which is termed as inductive or control model seeks to explain observed reality and provides verifiability. It contains variables under the control of the experimenter although the functional relationship exists there.

When the functional model is very complex and the control of the variable is also limited, it is better to go for the third type of model e.g., descriptive or predictive. This model does not have any explanatory or theoretical function. Instead of explaining any observed reality and providing scope for verifiability it classifies and put the data in order.

In the ambit of social sciences it is very rare to find any data where the intercorrelation does not exist at all. That is why purely functional or purely control model is difficult to establish on survey data.

In the light of the view of related literature and the above discussion, a model has been attempted to establish for the present study. The major aim of the study is to examine the impact of peer influence and educational aspiration on academic achievement of the students in the final year of the secondary stage. The theoretical background presented in the first chapter provides the following pertinent points to be considered.

1) The notion that 'the reference group process influences the behaviour of adolescents' and the peergroup serves the function of reference group.

2) The inclusion of peergroup as one of the primary
   factors that influences educational achievement.

3) The view that the differential level of educational
   aspiration is associated with two factors :
   differential self assessment of relevant characteri-
   stics by adolescents (e.g., intelligence or family's
   financial ability) and/or their perceptions of
   differential expectations from 'significant others'.

4) Recognition of student subcultures developed in the
   high schools as important motivator in determining
   future educational plan.

5) Educational aspiration as an enhancing agent in
   academic achievement of the students.

    The hypothesis that interaction with peers and
level of educational aspiration can facilitate academic
achievement of secondary school students is going to be
tested through a regression analysis model. The model also
suggests that the social origin of individual as well as
innate mental ability does affect on their achievement.

    The flow diagram below represents the elements
involved and their logical relationships in the model.

X_1
INT

X_3
PI

X_4
EA

X_2
SES

Ac Ach
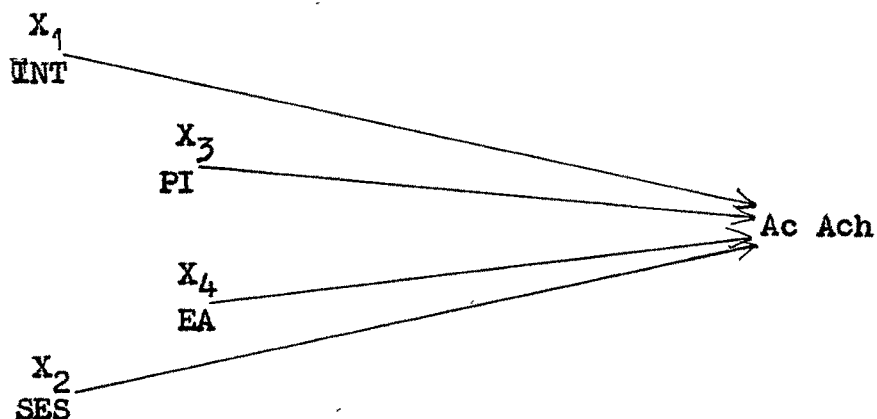
The model has been described more precisely by the following regression equation : .

$$Y = b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + C,$$

where, it is postulated that the four explanatory variables e.g., intelligence, socio-economic status, peer-influence and educational aspiration are essentially 'responsible for' the dependent variable, academic achievement. The model also takes into consideration the other two independent variables viz., area of institution and nature of institution.

3.5.1 HYPOTHESES FOR THE STUDY

In the light of the above points of consideration and model designed, the following hypotheses have been formulated as per the objectives of the present study.

Objective I(A) : To study the effects of area of institution, the nature of institution and their interaction on peer-influence of students.

Hypothesis : The extent of peer influence of the students varies due to area of institution, nature of institution and the interaction between area and nature. Therefore the null hypothesis to be tested are as follows :

Null Hypotheses : i) Mean peer influence score of the group belonging to rural schools does not differ significantly from that of urban schools.

(ii) Mean peer influence score of the group belonging to boys schools does not differ significantly from that of girls schools.

(iii) Mean peer influence score of the group belonging to boys schools does not differ significantly from that of coeducational schools.

(iv) Mean peer influence score of the group belonging to girls schools does not differ significantly from coeducational schools.

(v) There is no significant interaction effect between area of institution and nature of institution on peer influence of the students.

Objective I(B) : To study the effects of intelligence, socio-economic status and their interaction on peer-influence of the students.

Hypothesis : The extent of Peer influence of students is a function of intelligence, and socio-economic status and of the interaction between intelligence and socio economic status. Therefore the null hypotheses to be tested are as :

Null Hypotheses : i) Mean peer influence score of the students belonging to high intelligence group does not differ significantly from that of the low-intelligence group.

(ii) Mean peer-influence score of the students belonging to high socio-economic status group does not differ significantly from that of the low socio-economic status group.

(iii) There is no significant interaction effect between intelligence and socio-economic status on peer influence of the students.

Objective II (A) :   To study the effects of area of institution, the nature of institution and their interaction on educational aspiration of the students.

Hypothesis :   The level of educational aspiration of students varies due to area of institution, nature of institution and of the interaction between the two.   Therefore the null hypotheses to be tested are as :

Null Hypotheses :   i) Mean educational aspiration score of the group belonging to rural schools does not differ significantly from that of urban schools.

(ii) Mean educational aspiration score of the group belonging to boys schools does not differ significantly from that of girls schools.

(iii) Mean educational aspiration score of the group belonging to boys schools does not differ significantly from that of coeducational schools.

(iv) Mean educational aspiration score of the group belonging to girls schools does not differ significantly from coeducational schools.

(v)   There is no significant interaction effect between area of institution and nature of institution on educational aspiration of the students.

Objective II (B) :   To study the effects of intelligence,
socio-economic status and their interaction on educational
aspiration of the students.

Hypothesis :   The level of educational aspiration of
students is a function of intelligence, socio-economic
status and of the interaction between the two.   Therefore
the null hypotheses to be tested are as :

Null Hypotheses :   i) Mean educational aspiration score
of the students belonging to high intelligence group does
not differ significantly from that of the low-intelligence
group.

(ii) Mean educational aspiration score of the
students belonging to high socio-economic status group
does not differ significantly from that of the low
socio-economic status group.

(iii) There is no significant interaction effect
between intelligence and socio-economic status on educational
aspiration of the students.

Objective III (A) :   To establish the regression equation
for Academic Achievement in relation to Intelligence,
Socio-economic status, Peer-influence and Educational
aspiration for the total sample.

Hypothesis :   (i) All the four explanatory variable
viz., Intelligence, Socio-economic status, Peer influence
and Educational aspiration, do not predict the criterion
level of academic achievement to the same extent for the
total sample.

Objective III (B) : To establish the regression equation
for academic achievement in relation to intelligence, socio-
economic status, peer-influence and educational aspiration
for urban and rural group separately.

Hypotheses : (i) All the four explanatory variables viz.,
intelligence, socio-economic status, peer-influence and
educational aspiration, do not predict the criterion level
of academic achievement to the same extent for the urban
group.

(ii) All the four explanatory variables viz.,
intelligence, socio-economic status, peer-influence and
educational aspiration, do not predict the criterion level
of academic achievement to the same extent for the rural
group.

Objective III (C) : To establish the regression equation
for academic achievement in relation to intelligence,
socio-economic status, peer influence and educational
aspiration for boys, girls and coeducational school group
separately.

Hypotheses : (i) All the four explanatory variables viz.,
intelligence, socio-economic status, peer-influence and
educational aspiration do not predict the criterion level
of academic achievement to the same extent for the boys
school group.

(ii) All the four explanatory variables viz.,
intelligence, socio-economic status, peer influence and
educational aspiration, do not predict the criterion level
of academic achievement to the same extent for the girls
school group.

(iii) All the four explanatory variables viz., intelligence, socio-economic status, peer influence and educational aspiration, do not predict the criterion level of academic achievement to the same extent for the coeducational school group.

3.6. TOOLS

In order to measure different variables taken in the proposed study, several tools are required. The selection adaptation and development of required tools are described as follows :-

3.6.1. Selection of Tools

3.6.1. (A) The Intelligence Test : The most commonly used term in the arena of psychology viz., intelligence bears a nature of dynamic concept, for which it is not easy to conceptualize as a single mental process capable of exact analytic definition.

R.B. Cattell has summarised intelligence as the most general ability i.e., the 'g' factor. He has also remarked that a good subtest in an intelligence test battery is one that correlates very highly with 'g' factor and has only a small specific 's' factor.

In this study, following the footsteps of Cattell, intelligence is considered as a general ability. Accordingly to measure intelligence, 'a group verbal examination of general intelligence' constructed and standardized by Prof. K.P. Bora

has been selected and used in the study. The test was standardized on 3221 senior high school students of Gauhati (Guwahati, Assam). The sample selected for the present study happens to be from the same locality, which has warranted the researcher to select this test as a tool for the study. This test is a verbal group test of intelligence comprising of 100 items. The test items contain the following classifications – arithmetical reasoning, analogies, number series, verbal reasoning, opposites and classifications.

The reported reliability (split-half) is 0.96 (n = 74) for class X and 0.94 (n = 311) for class VII to X with σ 17.0 and σ_e 4.16.

The coefficient of stability (retest reliability) has been reported as 0.94 ($\pm$ 0.01) after a lapse of two months which is considered to be adequate for the test.

The factorial validity of the test is established by computing g – saturation values and centroid factor leadings. The first factor loadings are highest for all the subtests and follow the same order as that of the g – saturations. The contribution to total variance by factor a_1 is 89.1% and this is taken as indicative of g (Guildford, 1954).

The concurrent and predictive validity of the test with examination marks range from 0.62 to 0.72 for classes VII to X and is considered to be sufficiently significant.

The maximum time given to complete the test is 30 minutes.

3·6.1. ⁞ (B)   The Socio-economic Status Scale

The classic definition of socio-economic status, the commonly used concept for familial background had been offered by Chapin Long back as "Socio-economic status is the position that an individual or a family occupies with reference to the prevailing average standards of cultural possessions, effective income, material possessions and participation in group activity of the community".

To examine the impact of familial parameters on intellectual abilities of children is a long standing issue in social science researches. Two different usages are obvious from past literature : Consideration of familial parameters as a global concept or interpretation of the impact of different familial parameters like education - occupation - income of parents, number of siblings etc.

But the consensus among the present day sociologists is that occupation based measures represent the single best indicators of socio-economic status. From their view point is is advisable to measure education and income for indicating the familial environment. Socio-economic status can be controlled either physically or statistically (Hurst, C.H. : The Anatomy of Social Inequality 1979).

The concept of socio-economic status has been used widely in most of the studies mainly for two purposes. First usage is as one of the criteria for selecting subjects into the studies and second to use as an explanatory and/or control variable in the analysis.

Although the former use is more frequent, socio-economic
status, taken in this study has been used for both the
purposes.

A number of scales measuring socio-economic status
are there in India. Usually SES scales fall into two
broad and extreme categories. In the first, those
requiring a wide variety of informations like income,
sources of income, extent and ownership of land and houses,
possession of articles like radio, television etc., and
the other category of scales is asking for too little
an information which cannot serve the basis purpose of
rating for home and social environment for the subjects.
It is found that most of the students are unaware about
the assets of their families like ownership of land etc.,
while ownership of the things like motor cars, refrigerators
have got doubtful validity.

So, for the present study, the investigator decided
to use 'The Socio-economic Status Rating Scale' developed
by Prof. S.N. Rao. Although the scale was standardized
in AndhraPradesh, but a close scrutiny revealed that with
slight modification in scoring it can be used for the
present sample also. The scale consists of seven items
and the time required for administering is under 5 minutes.

The selected instrument also fulfils some of the
desirable criteria like unambiguity, absence of value
judgement or subjective evaluation, reliability and
consistency, simplicity and easy comprehensiveness etc.

The validity coefficient reported in the study was
.83 with the SES ratings rated by three judges by interview-
ing subjects. The test-retest reliability was .83 (after
12 weeks).

3.6.2. Adaptation of Tools

3.6.2 (A) The Educational Aspiration Scale

Educational Aspiration, a major independent
variable in the study has been operationalised as goal
setting in the field of education. The higher the
goal, the higher is the level of aspiration.

To measure this variable, the investigator decided
to adapt one of the existing tools. The educational
aspiration scale constructed and standardized by
Dr.T.B. Mathur of RCE, Ajmer (1969) was selected for
that purpose. The reported validity of the scale
against the opinion of teachers was .70 and the test-
retest reliability was .59 (after 26 days).

The criteria of selecting this tool is due to its
simplicity and widely used concept. Almost all the
studies done outside India have the tendency to use
this type of tool for gauging educational aspiration
of the students. Phutela (1976) and Rao (1982) modified
this tool and used in their studies to measure educational
aspiration of college and higher secondary school
students. Thus, the Educational Aspiration scale used
in this study is an adapted version of the original
scale.

In the scale, a list of seventeen educational plans are listed and students are asked to select one of them. If their plan does not fall in any of the category, they are asked to specify, it in the eighteenth category.

A group of experts from different status in the society were consulted for their opinions regarding weightage for each category. The mode of weightage assignment of the above mentioned scales was also consulted. Accordingly, due weightage has been given to each category. The maximum score for the scale is 9 while minimum is 1.

The scale is simple and also easy for administering and scoring. The maximum time limit taken by the students was 10 minutes.

3.6.1. (B) Tool for Academic Achievement

The index of academic achievement for this study was the marks secured by the students in the selection examination for High School Leaving Certificate examination. The selection examination was held after the administration of all other tools.

From the innumerable studies, it is observed that the traditional, popular and most commonly used essay type examination constitutes the only means of assessing students'performance in our schools and colleges. Although, it has been sex criticized on the grounds of unreliability, lack of objectivity and undue stress on memory, it still appears to be useful for measuring some of the important objectives of instruction viz., factual information, critical thinking, organization of ideas, study skills etc. These objectives emphasize the functioning of knowledge rather than mere possession (Stalnaker, 1935).

Although, some efforts were made to minimize the objections against essay type examination by implementing grading system, ranking system or use of normal probability distribution but the best alternative is nodoubt the use of achievement test. As suitable achievement tests are not available for the sample, it was decided to consider the existing examination for this purpose.

Accordingly, the marks were collected from the school. The marks obtained in the core subjects (Assamese, English, General Mathematics, General Science and Social Studies) were considered for the required index. All the schools selected for the study fall under the jurisdiction of Guwahati division (vide information, Inspector of Schools, KDC) and hence same question papers have been used in examination by all the schools.

Transformation into standard scores :   In order to minimize the subjectivity in examination marks as that was assessed by teachers of the same school, raw scores were transmuted into standard scores with a mean of 50 and standard deviation of 10. Employing $M = 50$ and $\sigma = 10$ is the most convenient procedure since in the very large majority of cases all scores will be of two digits.

As the transformation is linear, it does not change the shape of the original distribution of raw scores of academic achievement.

3·6.3. ⌐ Development of Tool

3·6.3. ⌐ (A)   The Peer Influence Scale

i) A conceptual framwork : In order to measure peer influence in an academic setting a special sociometric scale has been conceptualized and developed by the investigator. The concept "peer-influence", proposed and attempted to measure in this study is defined as - "The influence of one's peers which is supposed to be measured through the degree of involvement in different activities which occur generally among class room peers in an academic setting".

The model of peer influence takes into account several psychological and social factors; pre-disposition of individuals to be influenced by peers, amounts of interaction and interpersonal attraction between individuals, peer group interaction patterns and shared interests of peer group members. The class room peer group, which is considered in the study along with its unique features provides the scope both for social and cognitive development. Thus the psycho-social environment of academic setting is related to student-student interactions which is also suggested by peer associations in adolescence. According to Homans (1950) interaction is usually associated with shared activities and common experiences among group members. Therefore, the proposed tool is expected to measure the amount of interaction through the involvement in common activities. It is also suggestive that higher the amount of interaction more possibility is there of being influenced by the peers.

Within the context of the schools, self-report methods appear superior to observational methods for

assessing affective characteristics. From a theoretical
perspectives it also seems reasonable to assume that
pupil will express themselves more readily verbally than
behaviorally. Anderson (1981) stated that affective
characteristics in the school could be inferred from self
reports if social desirable response and similar response
styles are minimized. For minimizing social desirable
responses from the instrument, appropriate administrative
conditions and procedures are required as necessary.
While by keeping random ordering and relatively short
instrument the second problem of similar response style
can be dealt with effectively.

The proposed tool was a scale of modified likert
technique where some statements were given with quantitative
response mode. The most widely used likert scale is a
scale of related statements and adaptable to a variety of
situations and settings. It can be also modified to assess
a variety of affective characteristics to a wide variety of
individuals.

Keeping the above mentioned points in mind, the
students were asked through the questionnaire the degree of
influence exerted on them by their classroom peers in
various activities. Although peer group activities are
varied and numerous, only those activities were considered
which occur generally in an academic setting and which have
got direct or indirect influence on academic achievement.

(ii) Draft of the tool : A preliminary draft of
70 items was prepared by the investigator. The genesis of
items was acquired from related literature, informal discussions
with students as well as teachers of secondary schools.

By having an exhaustive review on correlates of academic achievement it is found that this all pervasive, dynamic concept is related to various factors. The factors and activities enumerated from the review are listed as - attitudes to peers, study habits, reading interests, greater academic interest and endurance, leisure time activities, hand writing, problem solving ability, interest, social and school adjustment, test anxiety, freedom from anti-social tendencies, radio-listening, relations with teachers, preparations for examinations etc. These are some of the significant factors in making impact on academic achievement of students. It is therefore assumed that if students are influenced by their classroom peers, they would be expected to participate in those activities along with their peers.

From innumerable peer group activities, activities having direct or indirect influence on academic achievement had been included in the proposed tool. In the draft, some items were given both in positive as well as in/negative form, while some were given only in positive form. The idea behind this was to verify the more appropriate way in assessing the desired concept.

Tentatively, the items had been classified into five groups :

a)	Class room activities	-	26 items
b)	Co-curricular activities	-	21 "
c)	Activities related to teacher		7 "
d)	Activities related to examination		9 "
e)	Deviant activities	-	7 "
		Total -	70 items

After a careful scrutiny by experts and translation into Assamese, the draft tool was ready for try out. An elaborate and clear instruction with example was also prepared along with the draft.

(iii) Try out : After preparation of the items, the tool need to be administered to representative group of pupils for analysis and evaluation of items. The representative nature of the group implies the selection of sample for the study itself. The preparation of item was done on subjective basis but for objective analysis among various criteria of evaluation difficulty and discrimination indices constituted the most acceptable basis. The purpose of the try out lies in assessing all those assessment procedures.

In accordance with Guildford's recommendation (1971, p 429) for computing Davis Indices, a sample of 370 students of Class X of seven secondary and higher secondary schools in Guwahati, Assam was selected for the tryout. All the seven schools are under Secondary Education Board, Assam among which three are from "Guwahati Urban Agglomeration" area which serves the purpose of selecting rural biased school (Appendix 'G').

The entire procedure of try out was quite systematic in the sense that after prior fixation of date with the school authority, the test was administered to the students. Necessary introduction was given to the students with the help of the principal/headmaster who accompanied the investigator to the class.

The investigator explained clearly the idea behind the test administration and requested the students to provide free and frank answers as success of the

investigation was dependent upon their honest responses. It was also pointed out that the test was meant purely for research purpose which did not have any connection with their school results.

After establishing necessary rapport, the test booklets were distributed and the students were asked to read the instruction carefully and to clarify doubts if there was any. In each class the number of students did not exceed fifty and it was easy to pay individual attention. After an elaborate explanation about the instruction the students were asked to proceed in marking the items. It was also told that there was no time limit for this test unlike other tests.

It was found that majority of the students had completed the scale within 30 minutes. The response of the students was sufficiently spontaneous.

(iv) Scoring and screening of items : After completing all the schools, the test booklets were scored with the following scoring key :

(a) Positive items — To a great extent ⎫
                       To some extent ⎬ = 1

                       Not at all   = 0

(b) Negative items — To a great extent ⎫
                       To some extent ⎬ = 0

                       Not at all   = 1

The items were scored as dichotomous in order to facilitate the use of item analysis chart. The screening of items in this stage was to distinguish involvement and non-involvement in activities listed in the tool.

From an objective view point, items can be
analysed both qualitatively and quantitatively. Qualita-
tive analysis includes the consideration of content
validity and evaluation of effective items while quanti-
tative analysis includes principally the measurement of
item difficulty and item validity. Both validity and
reliability can be built into a test in advance through
item analysis. Tests can be improved through the
selection, substitution or revision of items (Anastasi
1976, p 198).

The difficulty of an item was defined by Davis
(1946) - "as the proportion of a certain sample of testees
that marks the item correctly or ...... as the proportion
of a certain sample of testees that actually knows the
answer to an item".

If there is no right or wrong answer, instead of
calculating 'difficulty level', it is more reasonable to
consider it as preference or facility value. As the
present tool demands to distinguish between involvement
and non-involvement in some activities, it was decided
therefore to take as preference value instead of difficulty
value. For maximum differentiation, it seems that one
should choose the items at the 0.50 difficulty level.

If the number of persons passing each item in
upper (U) and lower (L) criterion groups are expressed
as percentages, the differences between these two
percentages provide an index of item validity that can be
interpreted independently of the size of the particular
sample in which it was obtained. All indices of item
validity are based on the relationship between item
response and criterion performance. Ebel (1967) has shown
that there is a close relation between the mean discrimination

index of the items and the reliability coefficient of the
test. The values of discrimination or validity index
are not independent but biased in favour of intermediate
difficulty levels.

For obtaining these indices, Kelley has shown that
the correlation estimated from top and bottom 27% tails
is more reliable than the tetrachoric estimated from the
top and the bottom halves of the group (Kelley, 1939).
Theoretically more reliable indices will be obtained
if the papers selected were the 100 highest and 100 lowest
cases rather than 27% upper lower (Guildford, 1971).
Flanagan prepared for the estimation of the product-
moment correlation from the 27% tails of the distribution
and it was recommended to use when 100 cases remain
in each tail which meant for a total sample of approximately
370.

Davis translated Flanagan's tables for reading
linear discrimination index. He also calculated the
P values. Using Pearson's Tables, Fan (1954) estimated
the P values for various levels of item criterion corre-
lation. Harper, Sangal and Das Gupta (1962) translated
Davis's discrimination index and Fan's difficulty P's
into a chart or abac from which discrimination and
difficulty value (P) for an item could be read directly
if the P_H 27% and P_L 27% of the group known.

For the items in the proposed tool, preference
and discrimination indices were calculated with the help
of the abac by Harper et al. It was found that preference
values were ranging from 31 to 82 and discrimination
indices were reported between 5 and 55. Items showing
negative values were not recorded for item analysis.

Two items (10, 40) had been excluded from selection due to its applicability to boy students only. The preference and discrimination values for the seventy items of the preliminary draft is given in appendix 'F'.

(v) Criteria of selection : The following criteria was considered for selecting the items for the final tool:

(1) Only positive items were selected as it appeared that negative items tended to maximise social desirable responses.

(2) The discrimination value of the selected items should not be less than 20. Items having discrimination or validity index more than 30 had been selected for the final tool.

(3) As a rule of thumb, the facility or preference value of any selected item should be within the range 20 - 85. The facility value of the selected items did not exceed the two limits.

(4) The items depicting deviant behaviours had been excluded from the final tool.

Taking into consideration of the above mentioned points, the final tool consisted of only 30 items and it could be completed within 15 minutes. Examples were excluded from the instruction part in the final scale. In Appendix 'F' the facility and validity indices of the selected 30 items are listed.

The scoring pattern of the items in the final scale was as follows :

Not at all	=	0
To some extent	=	1
To a great extent		2

(vi) Reliability and validity : As there is no equivalent type of scale available, it was decided to go for split-half reliability. Accordingly the tool was administered among 100 students of two coeducational schools (1 = rural; 1 = urban) and scripts were scored taking odd-even items. In the field of determination of reliability coefficient, Spearman-Brown Prophecy formula is the most widely used one.

Reliability by S-B prophecy formula (Garrett, 1979).

$$r = 0.6216$$

$$2r_{x\,x} = \frac{2r_{x\,x}}{1 + r_{x\,x}}$$

$$= \frac{2 \times .6216}{1.6216}$$

$$= 0.77$$

The reliability has also been computed by Rulon formula. Rulon has developed a simple formula for reliability of total test scores that follows closely the basic definitions of reliability — "that reliability is the proportion of true variance in a test (Guildford, 1971). Applying Rulon formula the reliability was found as given below :

$$r_{tt} = 1 - \frac{\sigma^2_d}{\sigma^2_t}$$

$$= 1 - \frac{19.3213}{76.4166}$$

$$= 1 - 0.2528$$

$$= 0.75$$

It is observed that reliability computed by both the formulae tend to have similar values. Hence, the reliability has been justified for the scale as it is above 0.60.

The content validity of the tool was accounted from opinions of a group of experts. Special attention was given at the time of construction of items and some of the correlated factors of academic achievement were included in the draft tool.

3·7.1 PRETESTING

In order to find out the feasibility and usability of the tools of the study, it was decided to go for a try out of the tools on a pretest sample. Pretesting serves a variety of functions like improving data collecting routines, revising locally developed measures, checking the appropriateness of standard measures etc., but it should be conducted on a sample which is very much alike to the sample of the final study.

Accordingly, the following tools were administered among 44 students of Class X in a coeducational school in Guwahati during the session 84-85.

(i) Socio-economic Status Rating Scale by
Prof. S.N. Rao, after getting it translated into Assamese
and checked by the experts.

(ii) Educational Aspiration Scale adapted by the
investigator.

(iii) Peer Influence scale as developed by the
investigator.

The fourth tool, intelligence test was not included
in the pretesting. The rationale behind this omission was
that, the selected intelligence test is a standardized one
in the same population. For the purpose of analysis
previous examination marks were considered in lieu of
intelligence score.

The selection examination for High School Leaving
Certificate examination was held just after the administra-
tion of all the tools. The marks of the core subjects
were collected. The scores yielded from pretesting were
also analysed with the help of the computer. The result
justified the theories provided and model formulated.
Hence the tools were found acceptable for the final form.

3·8. SAMPLING DESIGN

Before starting actual data collection, a decision must be made specifying the group of people to which the study pertains and that group is termed as the research population or target population. As it is not possible to cover the entire target population for the study, the procedure of selecting the research sample comes to the scene.

The research sample is that representative smaller number of people from the research population, which can give a statistical image of the population.

The research or target population of the present study was all the students studying in Class X during the session 1985-86, of the 123 provincialised Assamese medium schools in Guwahati division of Kamrup district, Assam (vide information, Inspector of Schools, Kamrup district circle).

Guwahati, the biggest city in North East region of India is the capital of Assam. The area covered by the city is 43.82 sq.km. with the population of 6.5 lakhs (projected figure, 1981). More appropriately it can be called from the nucleus of Assam, as people from all over Assam are found here.

All the schools comprising the target population are under the jurisdiction of Secondary Education Board, Assam and also Assamese medium schools. Assamese (Assamiya) is the language of the original inhabitants of Assam which comprises 61% (1971 census) of the total population of Assam.

As per the major objectives of the study it has
been decided to go for stratified random sampling. A major
stratification is urban-rural, where rural means either
small town or rural area, that is any location other than
in big cities. The present investigation attempts to
study the influence of the peers in the class-room group,
for which it necessitates to include all the students in
that class. This sampling method which requires the study
of all units in population is termed as saturation sampling
which is mostly used in sociometric researches. The same
procedure has been used here too looking to the nature of
the problem. The schools had been grouped into two major
divisions on the basis of the area of institution -
urban (A) and rural (B). Another sub-division was made
in both urban and rural division considering the nature of
institution viz., boys (A_1), girls (A_2) and coeducational
(A_3). The same stratification was also done for rural
division (B_1, B_2, B_3).

It was decided to select at least three schools
in each sub-group. The reason behind this selection lies
in taking minimum 100 students for each subgroup. Guwahati
is a big city and for getting a complete representation,
the schools were listed areawise as : Central Guwahati,
East Guwahati, South Guwahati and West Guwahati. Now
using lottery method 9 schools from Guwahati proper and
9 schools within the range of 28 Kms. around Guwahati
were selected as sample for the study. Two more schools
were to be included in urban girls group due to less
number of students. Thus the total number of schools
selected comes to 20 (11 = urban; 9 = rural). The research
sample of the present study thus constitutes 16% of the
research population.

The 9 schools selected for rural group (B) though located within the range of 28 kilometers around Guwahati, are found as rural biased school on a close scrutiny. Hence it serves the purpose of selection of rural sample. In the present study, schools situated in urban agglomeration areas are also considered as rural biased schools as most of the students come from neighbouring rural areas.

After selection of the schools, one section (division) of Class X in each school was selected for collecting the data.

An elaborate list of schools participating in data collection has been presented in Appendix 'E'. The sample distribution of the study has been depicted through a diagramatic form in Fig. (3.1).

3.9.1 DATA COLLECTION

The study was planned to be conducted in the following phases for collecting data from the students. The time chosen for data collection was the later part of the session of Class X before selection examination (85-86).

Phase I : Principals/Headmasters of the selected schools were contacted and a day was fixed for the administration. Necessary information like the number of students, size of the classroom, seating arrangement were also obtained.
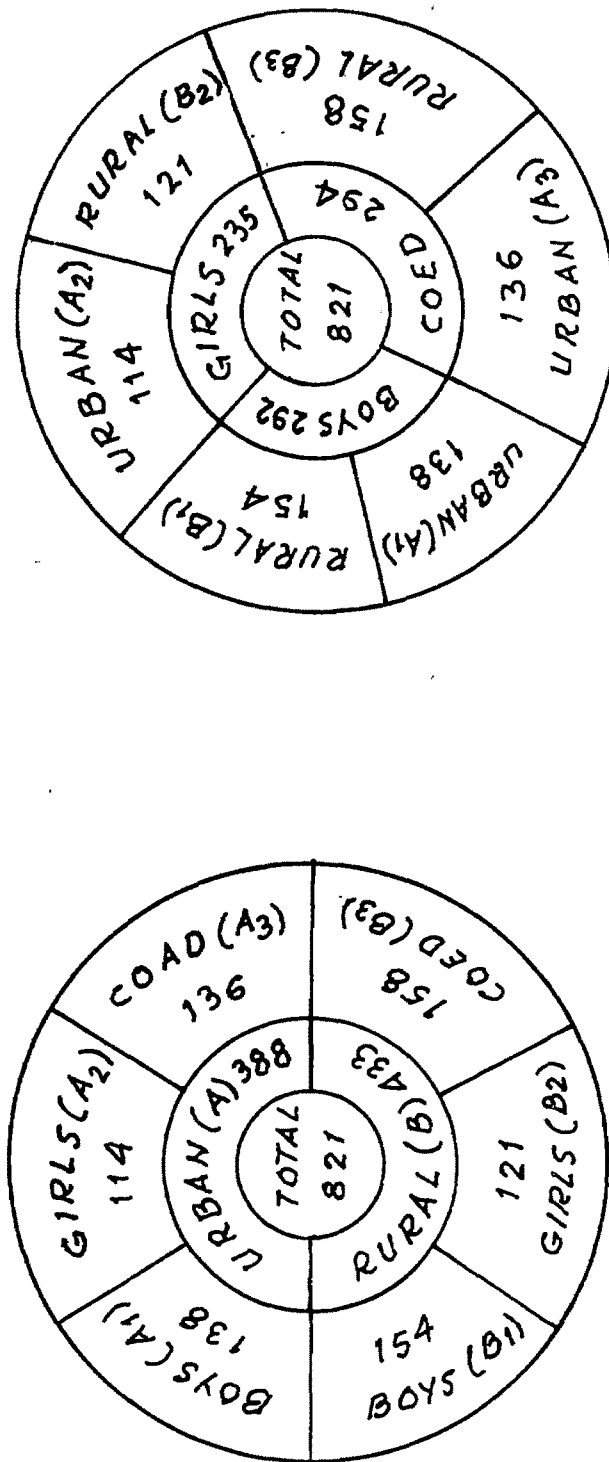
FIG. 3·1   A DIAGRAMATIC FORM SHOWING SAMPLE DISTRIBUTION
OF STUDENTS IN THE SCHOOLS OF GUWAHATI DIVISION
ACCORDING TO AREA AND NATURE OF INSTITUTION

Phase II : After necessary arrangement of the classroom
and after a succinct introduction about the
investigation, the tools were administered in
the following sequence :

(1) General information sheet and socio-
economic status scale.

(2) Educational aspiration scale.

(3) Peer influence scale

(4) Intelligence test.

Elaborate instructions were given before each
tool especially before intelligence test.

The administration of tools was done by the
investigator with the help of an assistant. So that the
students could clarify their doubts with least hesitation,
no teachers were requested to help in the testing session
in any school.

With a view to get reliable and complete data,
no time limit was imposed except for the intelligence
test. Time-limit was to be maintained rigorously for the
intelligence test as it was a speed test.

It was found that the testing session took about
one and half an hour to complete all the tools.

During the testing session the data were checked
and if some information was found missing, the particular
student was asked to fill that up. That was particularly
felt for the socio-economic status scale.

Phase III : After declaration of the result, marks were
collected from each school for those students
who participated in data collection.

3.10. DATA ANALYSIS

The statistical analysis of data is presented in a
tabular form below :-

Objectives	Statistical Analysis
I(A) To study the effects of area of institution, nature of institution and their interaction on peer influence of the students.	Mean, SD and (2x3) Factorial Design Analysis of Variance with unequal cell size are selected. It is decided to use 't' test provided 'F' is found significant.
II(A) To study the effects of area of institution, nature of institution and their interaction on educational aspiration of the students.	
I(B) To study the effects of intelligence, socio-economic status and their interaction on peer influence of the students.	Median-split approach for classifying the groups in terms of intelligence and socio-economic status. Mean, S.D. and (2x2) Factorial Design Analysis of variance with unequal cell size are selected.
II(B) To study the effects of intelligence, socio-economic status and their interaction on educational aspiration of the students.	
III To establish the regression equation for academic achievement in relation to intelligence, socio-economic status, peer-influence and educational aspiration for - (A) the total sample (B) urban and rural group separately (C) boys, girls and coeducational school group separately	As Multiple Regression Analysis is decided to compute.