CHAPTER II

REVIEW OF RELATED LITERATURE

Research in achievement motive is of recent origin. It started in 1946-47 with McClelland. This field has attracted many researchers in fifties and sixties. Several studies appeared in a number of journals. McClelland, Atkinson and others contributed to the wealth of literature in this area. Though researches in this field were mainly confirmed to business and industry in the initial stage, it has slowly found its way into education also. The studies that were conducted thus far can be classified under the following heads:

2. The basic nature of n Ach.
II.1 Methods of measurement of n Ach. and validation of tools

The pioneering work of measuring human motives, particularly the need for achievement (n Ach.) was done by McClelland (1943) and his co-workers. McClelland and Friedman (1952) have established that the Thematic Apperception Test (TAT) was the most reliable single instrument for the measurement of n Ach. This method of measuring n Ach. has gained ground and many researchers used it as emphasized by the works of Atkinson (1958, 1964), McClelland (1961, 1965), McClelland, Atkinson and et al. (1953), McClelland, Rindlishbocher and DeCharmes (1955).

Besides Thematic Apperception Test, other techniques of measuring n Ach. have been developed such as French (1955) Test of Insight (FTI), Edwards' (1954) Personal Preference Schedule (PSPS), Questionnaire Schedule like Alport and Haber's (1960) Achievement Anxiety Test (AAT), Carney's (1964, 1965) Questionnaire Index (Achievement Orientation), California Psychological Inventory (CPI), by Gough (1957). All these tools have been used to determine the achievement motivation level.
Of all the methods mentioned, the TAT type of n Ach. measure was strongly recommended by McClelland (1958 - cf. Atkinson, 1966) on the ground that it has a 'trio of ventures' - Validity, Flexibility and Generality. Other methods were developed mostly for the sake of better objectivity and simplicity in scoring. However, TAT type of measurement still dominates the field and most of the other scales validate their efficacy with reference to such measure. The scores of n Ach. secured through other methods of measurement often do not correlate significantly with TAT type measures. Morrison (1964) concluded that measurement of n Ach. with Sentence Completion Test (SCT) is not much feasible. He measured n Ach. by Sentence Completion Test and correlated the scores with the TAT n Ach. scores, and found the correlation coefficient between the two as .03.

Black (1964) while investigating correlates of a projective measure of n Ach. with a sample of physically disabled, questions the contention that projective technique in social and industrial research is useful since it is not threatening to the subject. He found some subjects experiencing high anxiety and felt threatened at the time of taking projective tests.
Regarding the relationship between various measures of n Ach, there is enough evidence to support McClelland’s contention that the three methods of measuring human motivation (in direct observation, self-rating, and projective method) yield essentially uncorrelated results and it would, therefore, seem wise for research worker to employ terminology which will communicate immediately which method of measurement they are using (McClelland, cf. Atkinson, 1966, p. 41).

Weinstein (1969) showed that several indices of n Ach do not measure the same thing and hence must not be used interchangeably. Reiter (1962) did not find any substantial intercorrelation between the three measures of n Ach, viz., n Ach. scale of EPPS, Achievement Imagery scale of ICWA Picture Interpretation Test and the Achievement Scale of the Page, Fantasy Scale. Studying the intercorrelation between the measures of n Ach. on TAT, EPPS and SCT, Pandey (1972) found SCT, EPPS and TAT have significant correlations but they were not high enough to justify the conclusion that they are the equivalent measures of n Ach.
Still others, Irvin (1967), Mukherjee (1965) and Dunham (1972) choose to use Sentences Completion Test (SCT) with items similar to those used by Peck and McGuire (1959). Mukherjee (1972) held the view that the self-reporting measures which have been claimed in the past as measures of achievement motive reflect very little of the dimensions covered by n Ach. measures.

Moreover, it has been shown by McClelland, Atkinson et al. (1953) that the discriminative power of the TAT method is best under neutral test conditions and with pictures of moderate achievement cue-value. This shows that different pictures have different achievement cue-values, some may be weak and some may be strong.

Murstein (1963) as an incidental finding in one of his studies noted that medium achievement structured thematic cards were most differentiating and the study of Caplehorn and Sutton (1965) suggests that pictures of different achievement cue intensity may measure different values. They showed that out of McClelland's four pictures, the two with the smallest number of achievement cues gave scores positively correlated with examination grades, while the scores on the other two did not.
Several other studies have been conducted to study the factors affecting Thematic Apperceptions and social achievement imagery.

McClelland and Atkinson et al. (1953), Atkinson (1958), and Veroff (1961) have pointed out the effect of cultural and situational factors on Thematic Apperception. Mehta (1969) has also found different cue-values for different pictures in his study with Indian pupils.

In a TAT type picture containing a child and a parent figure facing vs inverted position of the child vis-a-vis the parent figure was found to be influencing the achievement imagery in a study by Alper et al. (1967) who noted that under both task and achievement oriented conditions, achievement imagery was significantly more evoked by facing than by 'inverted' pictures. This effect remains true irrespective of the sex of the parent figure.

Orso (1969) found female n Ach. scores increase significantly after affiliated arousal conditions and decrease significantly after achievement arousal conditions. However, no such effect was found with male subjects.
The opinions and observations of several researchers about the use of different tools for the measurement of n Ach. are divergent. In the circumstances the investigator choose to use TAT technique to measure n Ach. level which alone has received the universal approval as an efficient instrument. Secondly the present instrument was standardised on Indian population by Mehta (1969) and hence its use in this study is justified.

II. 2 Basic nature of n Ach.

Two types of research studies can be generally located in this area: research studies seeking to factor analyse of n Ach. and the others exploring the nature and origin of n Ach.

McClelland (1958) used the term, "n Ach." to describe a measure of achievement motivation derived from content analysis of fantasy and n Ach to describe self-ratings of motivation and finds them measuring uncorrelated attributes. McClelland (1951) produced a number of arguments rooted in accepted principles of learning to support the view, advanced chiefly in psycho-analytic writings, that motives are developed early in life and become relatively stable attributes of personality which
are highly resistant to change. He assumed that the motives of an individual are relatively stable dispositions which he carries about with him from situation to situation. This assumption of McClelland was later confirmed by Feld (1967) who observed a moderate stability in gross n Ach. level from childhood to adolescence.

Mitchell, Jr. (1961) subjected 29 indices of achievement motivation to factor analysis which identified six factors, such as:

(i) academic achievement and efficiency, (ii) wish-fulfilment motivation, (iii) non-academic achievement motivation, (iv) self-satisfaction, (v) external pressures to achieve; and (vi) impacted generalized motivation without attendant effort. (pp.479-187).

In this connection, Weistein (1969) also provided evidences for the multi-dimensional nature of n Ach.

As against this, Bending (1964) gave thirty items from three need achievement scales to 300 college students and extracted two factors from the item intercorrelations. The orthogonally rotated factors were interpreted as 'Personal Need Achievement' (PNA) and Social Need Achievement (SNA)' (pp. 59-67) factors. Later on, Terhune (1969)
obtained a bimodal frequency distribution of n Ach. and supported the two factor theory.

Kahl (1965) comparing the interrelated studies of achievement-orientation, found that the orientation consists of at least four separate components: 'achievement mastery', 'trust', 'independence of family and occupational primacy or accomplishment' (pp. 669-681). The first three were found to be positively correlated with one another and SES. The fourth was found to be negatively correlated with others and with SES. Interpreting the results in the light of theoretical problems about achievement orientation, social mobility and economic development; Kahl (1965) hypothesized that n Ach. is distinct from occupational achievement values. It is an unconscious motivational need and occupational achievement values have a conscious belief system.

Scanzoni (1967) tested the hypothesis of Kahl (1965) by examining the relationship between the kind of child rearing practice which promotes n Ach. (as claimed by McClelland) and occupational achievement values, and found no significant relationship between the two. This suggests that Kahl's hypothesis has a certain amount of validity.
However, Holmes and Tyler (1968) tested the projective validity of three techniques of measuring n-Ach. viz., TAT projective cards, self-report on a rating scale and two self-peer rating measures (each subject listed 10 of his friends names on two criterion measures: class grades and two short laboratory tasks). Both the self-peer ratings scores were significantly correlated with grades. Holmes and Tyler concluded on the basis of these results that n-Ach. is a conscious phenomena and subject to direct self-report if the means of responding is made specific.

Scanzoni's findings came under heavy criticism from Loh (1968) and Crockett and Nunn (1968). Loh pointed out defects, in the theory and analysis that render the conclusions drawn by Scanzoni meaningless and suggested an alternative procedure for reanalysing the data.

Crockett and Nunn (1968) criticized Scanzoni on the following grounds:

(i) erosion of scientific standards in sociology which allowed publication. (ii) total neglect of reference and attention to the previous work of Rosen.
The authors thought that these are the reasons for gross theoretical and analytical misinterpretation of data by Scanzoni. Shreble and Stewart (1967) proved that AI, TI and UI responses are non-monotonic. Traditionally Achievement Imagery (AI), Task Imagery (TI), and Unrelated Imagery (UI) responses have been scored as monotonic though they form a continuum into AI indicating the highest achievement motivation and UI the lowest. They examined certain scoring procedures of McClelland and Atkinson projective measure of n Ach. and found that the three responses are non-monotonic, on certain personality variables. Subjects responding predominantly with AI were similar to those with UI responses. Both AI and UI SS were significantly different from those responding predominantly with TI.

Later, Morsback (1969) studied 247 African speaking Whites and 199 English speaking Whites in South Africa for n Ach. and for achievement values. It was found that Africa for n Ach. and for achievement values. It was found that African speaking SS were significantly higher regarding achievement values, whereas English speaking SS were significantly higher in n Ach., and within each group the two measures did not correlate significantly. This
finding supported McClelland's (1955) hypothesis that the 
n Ach. and achievement values are two different uncorre-
lated things.

The results discussed thus far led to many contro­
versies and encouraged the researchers to explore the field. 
Many tried to find out the intervening factor causing con­
troversial results. Many researches concentrated on find­
ing out the factors affecting n Ach. specially the achieve­
ment imagery, and many tackled the problem of measurement 
of n Ach. and validation of tools.

II. 2.1 Studies conducted in India in n Ach. development

The concept of n Ach. has attracted few educational 
and research centres in India. The researchers were 
enthused to try to investigate whether training to raise 
n Ach. would help subjects to have better performance in 
their undertakings, specially educational endeavours. 
With this goal in view few researchers have undertaken 
certain studies which are worth mentioning.

Prayag Mehta (1969) trained the teachers in n Ach. 
as a result of which not only the level of n Ach. of 
these teachers has gone up but also there was a marked 
improvement in their classroom activities. These teachers
results not only in terms of n Ach. but also in terms of school performance of urban pupils. The general behaviour of the pupils was also found to be significantly changed.

The third project was conducted by Desai and Trivedi (UGC Project) in which a new curriculum prepared by Desai and his associates was implemented in 14 urban schools of Gujarat. The gain in n Ach. due to the new curriculum, ranged from +2 to +21. The gain likewise in the performance of the pupils was from +5 per cent to +35 per cent. In addition to the gains mentioned, the students have a psychological awakening to do things in a better and new way.

The research studies of Mehta, Desai and their associates enthused the research students to take up further studies in achievement motivation.

The following studies are worth mentioning:

1. Sudha G. Patel (1972) tried out the syllabus prepared by Desai on 49 girls. The result suggested that the girls having average n Ach. and those having low n Ach. were benefited by Achievement Development Programme (ADM) than the girls with high n Ach. It also helped the subject to change their attitude towards studies by modifying their perception.
2. Shah, J.S. (1972) tried the same syllabus on 35 pupils. He observed an increase of 16.99 per cent n Ach. score in the pupils. Another significant gain in addition to gain in school performance was greater participation of pupils in classroom work.

3. Desai, M.J. (1972), tried out the syllabus on 50 students and came out with the following observations:

Training in n Ach. could increase the n Ach. scores of the pupils into 8.84. Pupils total motivation towards school was not affected by training in n Ach. Training in n Ach. could change the perceptions of the pupils in positive direction.

The n Ach. development programme seems to be relevant both to the teachers and students. The gain in n Ach. could be profitably employed for better results in the school work and to change the perceptions of the students. It also helps the child to develop confidence in his 'self' and feelings of inadequacy could be checked.

II. 3 Empirical studies in n Ach.

The review made so far covered the development of n Ach. tools and the basic nature of the need for achievement (n Ach.). Controversies and criticisms are
bound to arise in the social science researches. These controversies not only sharpen the theory and tools but also help to explore the field in all possible dimensions. This new field of research that has surfaced two and one half decades ago has attracted much attention. Studies conducted thus far may be classified under the following heads:

1. Effect of Environmental Factors on n Ach. such as:
   (1) Ethnic Group, (2) Social Background, (3) Home Conditions.

2. Effect of Organic Factors on n Ach. such as:
   (i) Sex, (ii) Age.

3. Effect of personality Variables and Behaviour Patterns of an individual on n Ach.

II. 3.1 Effect of environmental factors on n Ach.

(a) Ethnic group and n Ach.

Gokulnathan and Mehta (1972) studied the n Ach. of tribal and non-tribal school children of Assam. They found tribal high school children showed higher n Ach. than a non-tribal children. This trend is evident in urban based children but not in rural based children. Another interesting factor that came up in this study was that there was no tribal, non-tribal difference in the n Ach. level.
of the girls. But the tribal boys showed significant difference from the non-tribal boys.

Minigione (1965) conducted two studies to compare the scores of Negro and white children on n Ach. In both the studies, whites scored significantly higher than the Negro children. However, in his later study (Minigione, 1968) with V and VII grade children in low SES area of a large New England city, he could not find any significant difference in n Ach. among Negros, whites and the Puerto Rican children.

Morsbach (1969) studying n Ach. of 247 African speaking and 199 English speaking whites found that English speaking whites were significantly higher in n Ach. and the African speaking whites were significantly higher in achievement values.

A few studies also tried to analyse the nature of n Ach. in coloured South Africans and Turks. Cansever (1968) examined the level and nature of n Ach. in 282 Ss in Turkey. The mean n Ach. was found to be 2.94 and the content of the stories revealed concern over the means of reaching the goal; the obstacles to the path of success and need for some external force to initiate
the motive to achieve. Similarly Lazarus, Kessal and Botha (1969) in their cross-cultural study of whites and coloured South African adolescents found certain minority groups, which were subjected to discrimination have low n Ach.

(b) Social background and n Ach.

Some studies seem to point out the effects of such factors as social status of an individual in a group and the surroundings in which he lives. Two studies mentioned below, represents this category.

Zandir and Forward (1968) studied the effect of an individual's position in a group, on his achievement motivation, measured in terms of level of aspiration. The study yielded the following results:

1. A member when in the central position developed a stronger drive for group success then when in a peripheral position.

2. When occupying a peripheral position a Ms Maf (Motive to approach success is greater than motive to avoid failure); person becomes more concerned about the group success than Ms Maf person.
3. When occupying a central position a Ms Maf person becomes as much concerned about the group's success as Maf Ms person (pp. 282-288).

Studies of Angelini and et al. (1970) related to the effect of surroundings of one's n Ach. He observed a higher achievement motivation in industrially more advanced areas. Sample of this study consisted of 494 males and female adolescents of age group 12-18 years, who lived in four regions, which were characterized by different stages of industrialization of Brazil.

(c) Socio-Economic status and n Ach.

Individuals are subjected to different experiences and situations because of several factors. Socio-economic status is undoubtedly one among those factors and certainly one of the major-factors. If the parents are of primary importance in the learning process involved in acquiring the n Ach., the SES may indirectly affect the n Ach. level of the child in the family because of the acceptance of values of the social class through the parents. Research has indicated that identification with the same sex parents leads to the acquisition of values similar to the parent and consequently similar to
the SES. Different class of people place different emphasis on things such as education, business, and occupational goals which have been known to develop the n Ach. of individuals. There are several studies which investigated the relationship of SES with n Ach. To quote a few:

Srivastava and Tiwari (1967) studied n Ach. in relation to SES and found that upper class people have n Ach. but middle class the highest n Ach. Mehta (1969) did not find, in his study, any difference in n Ach. levels because of SES. But at the same time he found highest level of n Ach. among the boys whose fathers were highly educated and engaged in semi-professional works. Malatesha (1969) used TAT to measure n Ach. and studied the relationship between n Ach. and SES. He found no significant difference because of SES.

Vidhu Mohan and Vinod Kumar (1972) found significant difference in n Ach. levels because of parents educational level. Chowdhry (1971) found positive correlation between n Ach. and social class and observed that the social class has a significant relationship with n Ach. level.
Gokulnathan (1970) and Desai (1970) reported that boys belonging to high SES families have high n Ach. than the boys belonging to low SES and middle SES families. But Mehta (1967) did not support this finding. He found low SES group obtained high n Ach. score than the middle SES group.

Amita Choksi (1973) found that high SES subjects have significantly high n-Ach than the low SES group. The subjects were 9th class students studying in Baroda city schools. Rekha Kapoor (1974) also studied n Ach. but found no significant difference because of SES.

Ten studies conducted in India have been reported here which have examined the relationship of SES to n Ach. Samples are different from one study to the other. The findings indicate no consistent trend. The reason for the erratic results, the investigator feels is that the age of the subjects interferes with the relationship of SES with n Ach. If age is controlled then one can hope consistent results. In addition to the Indian studies reported there are several studies which have investigated the relationship of SES with n Ach.
The influence of social class on achievement and other variables is better understood when one looks at what the social class means. Here is given a short note on social class.

**Social class**

Social class can be traced back to social thought. As stated by Barber (1957) social class refers to social stratification. Social stratification indicates that both the individual and groups of individuals are conceived as forming lower and higher classes on the basis of some specific characteristics. The dimensions of social stratification are power, occupation, prestige, income or wealth, education, family and ethnic group position and local community status. The social class of a person represents that group of individuals with whom he associates himself on more or less intimate terms. He shares common ideas, values, attitudes and ways of conduct with them. Cronbach (1954, P. 131) recorded that social structure is a pyramid with a few families having the privilege that goes with high social status and a great many families in the undistinguished and unprivileged lower classes. Social classes which are formed in terms of indices such as education, income, and occupation or some combination
thereof, have their class culture. As observed by Warner (in Cronbach, 1954) the upper class is an established aristocratic group including the oldest families and those who have been distinguished in the community for generations. It consists of a relatively small group of families with inherited wealth and position. The member of upper class maintains graceful styles of living that sets apart from other classes. Kahl (1957) maintained that, working class man cannot expect much promotion in pay. He had little commitment to his job and more commitment to outside interests. He has little money and holds a job which requires little training and moves from job to job as opportunity offers. He does not seek distinction as an individual or as family. Miller and Reissman (1961) state stability and security, traditionalism and self-centeredness, pragmatism and anti-intellectualism are the characteristics of working class sub-culture. Characteristics attributed to the middle class are concerned with individual development, acquiring wealth and property, deferred gratification, occupational success, morality, and advancement. Grass (1962) characterises a middle class sub-culture as emphasising the importance of nuclear family, child rearing, the husband's career and education
in terms of contribution to career advancement. Cronbach (1954) reports that the striking difference among upper, middle and low class groups is in their value systems. He further states that these values refer to general tendencies and not to rigid characteristics of upper, middle and low class groups.

In addition to Indian studies already reported, mention may be made about some more studies from the countries other than India.

A study by Rosen (1961) utilized the Holingshead Index of social position found that male children from the higher SES grouping scored significantly higher on projection test of n Ach. than did those of the lowest SES groupings. McClelland (1961) and Milstein (1956) obtained results in agreement with Rosen. There have been studies indicating low SES subjects scoring lower on n Ach. than do middle and upper SES individuals. The studies that report the above results were: Cameron and Storm (1965), Crockett (1962), Kahl (1957), McClelland, Rendlishbacher, and DeCharms (1955), Rosen and D'Andrelle (1959), Terrell, Durkin, and Weseley (1959) and Veroff, Atkinson, Feld and Guren (1960), Douvan and Adelson (1958).
Littig and Yeracaris (1963, 1965), Carney and Mekeachie (1963), Muttal (1964) and Morgan (1964).

Veroff (1960) obtained the estimates of n Ach. levels of various segments of American population from individual interview. He found higher level of education, higher occupational levels were positively correlated with n Ach. levels. Veroff further commented that SES seems to be of more important for determining n Ach. level at least today and in America than religion or ethnic origin. But according to Rosen (1959), Carney and Mekeachie (1963), Jews have appeared to possess a remarkable high n Ach. level even in the lowest social strata.

But McArthur (1955) found that middle class students at a public college scored higher in n Ach. than upper class students in Harward.

Again, Bruckman (1966) obtained positive and significant correlation between the social class and n Ach. with (9-11) years old age group subjects.

But Liberman (1968) found no significant difference between the n Ach. level of high and middle class subjects. The subjects were 125 upper class private school boys and 109 middle class public school boys.
II. 3.2 Effect of organic factors and n Ach.
(a) Sex and n Ach.

Basically, it can be hypothesized that males will have higher n Ach. than females. If the general definition of n Ach. which this study accepts as "Competition with a standard of excellence in an attempt to excel" is kept in mind and the theory that the n Ach. is learnt through particular experiences and situations is utilized then it may be seen how this hypothesis was developed through consideration of the experiences and situations to which males and females are differentially exposed. The tradition bound culture of India is strongly polarised in its treat of the two sexes. In the training of the male child, considerably more emphasis is placed on orientation to achievement producing behaviour.

With this background to understand sex the following studies were reviewed.

Gokulnathan and Mehta (1972) studied n Ach. in relation to sex and found that n Ach. level of tribal girls of Assam was significantly different from the n Ach. level of tribal boys. This result was supported by Gupta (1970), Choudhry (1971) and Mehta (1973). But
in Desai's (1970) study boys were found to have higher n Ach. level than girls which was supported by Sinha (1967) and Namdea (1972).

Mukherjee (1965), Pathak (1973) and Choksi (1973) also studied n Ach. in relation to sex but found no significant difference between the two sexes.

From these Indian studies it is not possible to judge how sex of an individual contributes to his n Ach. level. The investigator is of the opinion that when the sex relationship to n Ach. is studied the age of the SS and the situation in which they are placed should be taken into consideration. Then only, perhaps it is possible to study the relationship of sex to n Ach.

Rosenblum and Haarman (1970) found that first born males were superior to first born females in n Ach. level. Frankalen and Murphy (1970) tried to find out the differential effect of continued success on high and low n Ach. males and females. It has come out from their study that high n Ach. (HA) men make the task more difficult to preserve the preferred ratio of 0.5 and that low n Ach. (IA) men optimise winning while winning and losing while they are losing. But women tend to move
towards the target (to make the task easier) no matter what the ratio of hits to miss is. The LA women tend to behave like HA men and HA women tend to behave like LA men.

Minigione (1965) found in one of his studies of Negro population that Negro girls scored significantly higher than boys.

Munz, Smouse, and Letchworth (1961) conducted two studies using non-projective instrument for measuring n Ach. This instrument's measures had two parts - one to measure need achievement and the other to measure need to be a success. In one study females scored higher than males on the second scale, while in the other study females scored significantly higher than males on both the scales.

French and Lesser (1964) had also found confirmation of their hypothesis that females would respond to arousal cues with heightened achievement motivation scores and high motivated performance relationship when the cues were related to a goal that was achievement oriented to them but not otherwise.
Baruch (1967) tested two more hypotheses regarding the nature of n Ach in women:

- There is a temporal cycle of n Ach associated with age and family situations, in women.
- High n Ach is associated with return to paid employment.

These two hypotheses were tested against the TAT stories written by 137 Radcliffe alumnae and were found justified but a broader test with a nationwide sample of 763 women failed to confirm either of the hypotheses. The first relationship was obtained for only college women in the sample, and further analysis indicated that a true lag between increased n Ach and increased participation was in paid employment.

Another study by Denny, et al. (1968) found that females have higher n Ach level than males.

A study by Dunham (1970) found that of a sample of freshman from a small private mid-west college males scored significantly higher than females in n Ach as measured by Sentence Completion instrument developed by Peck and McGuire (1959) and modified by Irvin (1967).
McClelland (1953) stated that women did not respond as did men to achievement arousal conditions which he utilized while administering the TAT. This was verified by Veroff, Wilcose and Atkinson (1963) when they replicated McClelland's study.

A study by Lesser, Krawitz and Packard (1963) found that for males there was no overall increase in n Ach. level attributable to arousal conditions. Further they found that for high achieving females the use of females' character in the TAT portrayals increased their n Ach. scores while for low female achievers the use of male characters in TAT portrayals resulted in high n Ach. scores.

Two more studies were reported which investigated the relationship of sex to n Ach. The sample was that of the students of education (B. Ed.) by Vijayavardhan (1975) and he found that the n Ach. level of women students was greater than the n Ach. level of men students. Prasada Rao (1974) studied n Ach. of Intermediate students of Andhra Pradesh and found n Ach level as
(b) Age and n Ach.

Certain personality factors, attitudes and motives are function of age. These factors seem to develop up to certain level and then stop. Bruckman (1966), Minigione (1968), and Stein (1971) studied n Ach. in relation to age. They found that n Ach. increases with age up to certain stage - from early childhood to young age. However, in a few studies like Mehta (1969), and Smith (1970) no significant relationship was found between age and n Ach. However, Lakhia (1971) studying 100 trained teachers from six different schools of city area found that the teachers falling under age group 26+ to 40 have higher n Ach. than those falling under the range of 21+ to 25 year, and 41+ onwards.

While explaining how n Ach, and risk-taking (R-K) behaviour develop in children at young and early age, Hodkingson (1955) observed the 'individual differences in n Ach. have appeared by age 5. Individual differences in R-K also appeared by the age 5 and that n Ach. predispose children even at this age toward taking moderate risk.'
n Ach. score based on children's doodles will correctly predict which ones will tend to take moderate risks and which ones will swing between extremely safe and extremely speculated undertakings.

Both n-Ach. and R-K propensities seem to be developed so early in life but too early for them to be part of conscience.

II. 3.3 Personality correlates and n Ach.

Need for achievement, no doubt, is a behaviour construct and an individual's behaviour is related to his personality. In this connection, it can be assumed that n Ach. and certain personality correlates may have relationships. Persons with high n Ach. and low n Ach. have been found to have some basic characteristics as shown by various studies. Here some studies are reported.

Myers (1964) found that persons having high n Ach. prefer challenging jobs which allow for a feeling of accomplishment, responsibility and growth. John (1966) found high n Ach. persons scoring high on interest maturity scale. Muthayya (1967) found autocrats to have lower n Ach. than democrates. This observation is some what different from his previous finding in which
obstacles dominant Ss were found to have higher n Ach. score than the ego-defensive Ss. Later on Muthayya (1968) concentrated on personality traits of the individuals and tried to see the relationship between n Ach. and different personality traits. He found no significant mean difference in the n Ach. levels of extroverts and introverts, neurotics and normals suggesting that these personality dimensions have no direct bearing on one's level of n Ach. Taking thread from this study Muthayya and Rajewari (1968) investigated further and found contradictory results, extroverts being more achievement oriented, but the mean difference was, however, not significant. As the mean differences were not significant in both the studies cited above, it can be concluded that personality dimensions have no direct bearing on one's level of n Ach.

Siddqui and Akhtar (1969), using Symond's picture test, adopted and standardized by Quaireshi to measure n Ach., studied disciplined and indisciplined students at Aligarh Muslim University. They found that disciplined students scored high on n Ach. than indisciplined students.
Mehta (1973) in a recent study found the students activist showing significantly greater mean n Ach. than non-activist university students.

Lazarus (1967) found creativity and curiosity related to achievement motivation and anxiety. Shanthamani and Hafeez (1969) tried to find out relationship between n Ach. and neuroticism but failed to find any significant correlation between the two variables. Lester (1970) studied n Ach. in relation to fear of death but failed to establish relationship between the two in any significant way. Mukherjee and Sinha (1967) related manifested anxiety to achievement orientation using 'Sentence Completion Test' and found that anxiety was strongly related with achievement orientation. Dave (1970) using KG children as subjects did not find any relationship between n Ach. and risk taking behaviour.

II. 3.4 Other factors and n Ach.
(a) Academic performance and n Ach.

Motive is a latent disposition to strive for a particular goal, state or aim and achievement motive is associated with striving for some kind of excellence or competition with a standard of excellence. When n Ach.
is present in an individual it should reflect in the same measure in the activity in which the individual is engaged. If an individual is, for example, engaged in an educational pursuit, his educational achievement is intimately connected with his \textit{n Ach.} level. Studies are reported which investigated the relationship between academic performance and \textit{n Ach.}

Efforts have been made in India to find out the relationship between \textit{n Ach.} and academic performance but the results vary from study to study.

Mehta (1969) in his NCERT (National Council of Education Research and Training) study obtained positive correlation of \textit{n Ach.} with marks in various school subjects at the final examinations. The correlations varied with different subjects such as English ($r = .179$), Hindi ($r = .09$), Maths. ($r = .118$), Science total ($r = .134$) and non-Science total ($r = .085$). The correlation with total school marks was ($r = .179$). All the coefficients of correlation were significant and positive. Desai (1970) also found significant correlation between \textit{n Ach.} and academic performance.
In a study of achievement related motivation (n Ach. and anxiety) and educational achievement among secondary school students of Assam, Gokulnathan (1971) found no relationship.

Mehta (1973) found n Ach. significantly correlated with academic achievement. The correlation obtained was $r = 0.41$ and the sample was 189 post-graduate activist and non-activist students. Laxmi (1969) found significant difference in n Ach. scores between slow and fast learners. Fast learners showed greater need for achievement (not significant though positive).

Sinha (1970) investigated the relationship between n Ach. and academic performance of 400, 10th and 11th class boys equally divided into high and low achievers on the basis of the scores. McClelland's n Ach. test was administered to the groups under neutral conditions. Results showed that n Ach. was significantly and positively correlated with academic achievement. Other studies by Patel (1971), Rawal (1971), I. G. Patel (1972), and M. J. Desai (1972) supported the general finding that n Ach. and academic performance correlate significantly. Also Tamhankar (1967), Muthayya (1964), Singh (1965), Srivastava (1966), Chitra (1968) all showed the confirmation of the results already arrived at.
Ricciuti (1954) studied a sample of naval officer candidates and a sample of freshmen. He found that both yielded correlation coefficient of zero order between academic average and n Ach. scores. Later Ricciuti and Sadacca (1955) worked with high school population, used two nine-picture forms of the test and conducted cross-validation studies against both, pictures and scoring categories. The correlations obtained were .18 and .28 between n Ach. and grade average.


Silber, et al. (1961), Field, et al. (1963) reported that it was possible to infer positive correlation between n Ach. score from TAT and academic performance.

Heckhahusen (1967) study revealed that the relationship between n Ach. and academic performance was equivocal.

The results in all the studies discussed have pointed out that there is positive relationship between n Ach. and academic performance except in the case of few studies.

In short, it can be summarised that the effect of n Ach. is reflected in the academic performance more predominantly when:

- n Ach. is defined as a need to do job well through one's own efforts.
- When academic performance is considered instrumental in future success, and
- the TAT pictures have the smallest number of achievement cues.
(b) Intelligence and n-Ach.

Attempts to find out the relationship between intelligence and n-Ach. reveal erratic findings. It appears this relationship was not systematically studied.

The results shown by McClelland, Atkinson, et al. (1953), French (1955), McClelland (1956), Mohone (1960) and Hayashi, Okamoto and Habu (1962) did not reveal any statistically significant correlations between the two variables. French and Thomas (1958) worked with air force recruits and selected only the highly motivated from the upper group and found a positive correlation of 0.36 between achievement motive and IQ. Robinson (1964) obtained a correlation of 0.04 for a group of 11 and 12 year old children in the upper half of the intelligence distribution. Meyer, Heckhausen, et al. (1965) have found close relationships between the two variables. The obtained correlation is 0.52 with success motivation and 0.05 with total motivation.

In India, Mehta (1969) obtained a significant partial correlation of 0.20 between n-Ach. and scores on a verbal group-test of intelligence. This finding was supported by Desai (1970). But Choudhry could not support the findings. Muthayya and Rajeswari (1968)
found backward children to have lower n Ach. score than the normals, however, the mean difference was not significant. They used Raven's Progressive Matrices for the measurement of IQ and Murray's TAT cards for measuring n Ach. The study was conducted in Madras on 26 normals and 16 backward children of the age group 14 to 16.

In other studies significant correlations were obtained between the two variables. Lakhia (1971), in his study of 400 trained teachers, reports a correlation of 0.68 and Raval (1971) in his study of 100 high school pupils reports a very high correlation of 0.73. In both the studies non-verbal test of intelligence was used to measure IQ, and TAT of Mehta for n Ach. scores.

Pathak (1973) studied IQ in relation to n Ach. of the school pupils and found a significant correlation between them (r = .86). Haun (1964) studied IQ in relation to n Ach. and found no correlation. This finding provided one of the few instances of achievement imagery measure clearly unfounded with IQ.

Since the results are not able to give any conclusive trend it needs further investigation with proper controls on the intervening variables.
(c) Parents' Education and n Ach.

Male parent is the symbol of authority and model for the development of certain achievement oriented qualities in the children. Some individuals emphasise certain characteristics. Studies are available wherein it was investigated whether father's education has got any relationship with the n Ach. of the child. McClelland, Sturr, Knopp and Wendt (1958) found no significant relationship between father's education level and child's n Ach. level. But the study of Gokulnathan and Mehta (1972) of tribal children found that the n Ach. of tribal children whose parents were low educated have higher and significantly different n Ach. than that of the non-tribal children whose parents were low educated. In another study by Mehta (1969), it was found that parents' education and occupation were significantly related to the n Ach. level of the children.

Moss and Kogan (1961) have empirically investigated the influence of parents' education level on the n Ach. of the children. It was found that subjects whose parents were highly educated scored higher in n Ach. than the subjects whose parents were low educated.
(d) Faculty and n Ach.

It might be said that person's perception of success and failure in life acts as a strong determinant of motive to achieve success, and for this they take calculated risks and also choose safe alternatives (Atkinson, 1966). In the light of the observation made by Atkinson, one can presume, the students tend to study either arts courses or science courses according to their perception of the course content, perception of self to cope with it and perception of the course content, perception of self to cope with it and perception of future goals. Studies were conducted wherein it was investigated the relation of the faculty (arts vs. science) to n Ach. level.

De and Shambhoopriya (1972) studied n Ach. of the science vs. art students and found that the n Ach. level of science students was significantly higher than the n Ach. level of arts students. The observation they made about this finding was that the science students have more crystallized life goals in terms of their occupational opportunity than the students of arts. In the absence of adequate number of students the finding may not indicate any definitive trend.

More studies are needed to establish this finding.
II. 4.1 Socio-Economic status and academic performance

Since different classes of people place different emphasis on things such as education and occupational goals, children coming from such family show differences in their educational performance and occupational aspirations. Many studies were conducted to relate SES to academic performance.

But there were studies which showed no such relationship between SES and academic performance. Conklin (1940), Curry (1962), Myers (1952), Naidu and Aaron (1960), Nemzek (1940), Rao (1968), Sinha (1966), and Watson (1965) fall under this category.

II. 4.2 Intelligence and academic performance

Intelligence is a capacity of an individual which is manifested through his ability to adopt and to reconstruct the factors of his environment, in accordance with his group. Psychologists accept the idea that the capacity to learn is essentially an aspect of intelligence. Studies were conducted to find out the relationship between intelligence and academic performance.

Tamhankar (1968), Thurston (1925), Tooks (1926) and Varma, et al. (1960) have found positive relationship between intelligence and academic performance.

But on the other hand, studies of Cooking and Holy (1927), Gupta (1967), Muthayya (1966), O'Brien (1928), Rao (1968), and Young (1936) have reported no relationship between IQ and academic performance.

Miss Shah (1974) studied the performance of science of high school students in relation to IQ. It was found that scores in science and IQ were correlated significantly \( r = 0.49 \).

Douglan, Kinney and Segel (1934), Wagner and Garrett (1937) have reviewed the studies dealing with intelligence and academic performance. The number of studies they have reviewed ranged from 39 to 442 and the mean value of correlation coefficient was found to vary between 0.40 to 0.50 (as quoted in Rao, 1967, p. 13). Eysenck (1947) have reviewed 358 titles and concluded that the correlation varied between 0.50 and 0.60.

Louttite (1947), Pintner (1943), Aaron (1946), Frochlich and Hoyt (1959) have also reviewed the literature
related to intelligence as a predictor of academic performance. The correlation reported by them were Louttit - .10 to .60; Pintner - .28 to .60; Aaron - .25 to .65 with a median of .48.

Harris (1940) pointed out that a multiple R of .6 or .7 was found between college grades, secondary school grades, intelligence and scholastic aptitude.

SECTION 'B': II.5.1 STUDIES IN SELF-PERCEPTION

Perception means converting a sense impression of the organism into the awareness of some meaningful situation.

Haider (1946) defining Social perception says - "it is not so much the study of social influence upon the perception of the physical world but rather the study of the conditions which influences our perceptions of other people and determines the characteristics and relations that we attribute to them."

Woodworth (1947) believes that "perception is always driven by a direct, inherent motive which might be called the "will" to perceive. Whatever alterior motives may be present from time to time, this direct perceptual
motive is always present in any use of the sense. It is impossible to look without trying to see, or listen without trying to hear. To see, to hear - to see clearly, to hear distinctly - to make out what it is one is seeing or hearing - moment by moment such concrete immediate motives dominate the life of relation with environment. When the goal of such a search is attained strong reinforcement is revealed by the observer's cry of satisfaction and later by his excellent retention of the discovered figure."

Self-esteem has been considered as a central personality variable. It then follows that individuals with high self-esteem and very low self-esteem should differ.

A study by Mukherjee (1965) investigated the relationship between self-perception and \( n_{Ach} \). He measured self-perception by a 30 item questionnaire called 'Self Insight Test'. The test gives seven dimensions of self-image - sociability, perseverance, leadership, flexibility, perfection, intellectual ability, and emotional stability. Need for achievement (\( n_{Ach} \)) was measured by Sentence Completion Test constructed by the author. The sample
consisted of 87 undergraduates enrolled for introductory psychology course. No significant difference was evident between high and low (median split) groups with regard to their self-perception. But from the figures it was obvious that high n Ach. group scored higher self-ratings on 'perseverance', and lower rating on intellectual ability.

No significant differences was found in self-perception due to sex. Jones and Grieneeks (1970) studied the measures of self-perception as predictors of scholastic achievement. The subjects were sophomores. They defined self-perception as self-expectations, self-concept of ability and degree of identity of development. The results indicated that self-expectations correlated significantly with GPA for girls only self-concept of ability correlated significantly with GPA for both boys and girls, and identity ratings correlated with GPA for boys and total. The authors commenting on the results observed that it might well be that the male sophomore is generally a person who has intellectual capacity to make it college and it is at this point that the non-intellectual factors of his existance become prominent in controlling his behaviour, both academic and otherwise.
Another study was conducted by Inamdar (1974) with 100 high school students. She investigated the relationship between perceptual world and n Ach. of the high school students. The perceptual world in this study has five dimensions - self, school, goals, aspirations and conflicts. The need for achievement was measured by TAT. No significant relation was found between the perceptual world and n Ach.


George and Mathew (1967) studied ideal self-concept held by men and women.

Self-perception as measured by the Self-Report Inventory (SRI), (Bowm, 1958) has been widely used in research mainly connected with teacher education programme.
and mental health of the college students. Nearly 50 research reports are reviewed by the investigator where the SRI was either principal instrument of measurement or one of the instruments. For brevity and want of space the researches connected with the following variables only are reported here: Commitment for teaching, teacher effectiveness, personality dimensions of student teachers, attitudes and aptitudes of college students, and sex differences of student teachers.

1. **Commitment to teachers**

   The study reported in this area in relation to the scales of the SRI is that of Barton (1970).

2. **Teacher effectiveness**

   Studies reported in this area in relation to the scales of the SRI are Veldman (1964, 1965), and McLondo (1965).

3. **Personality dimensions of student teachers**

   The studies reported in this area in relation to the scales of the SRI are Veldman (1960), Bohn and Richenk (1968, 1969), and Bohn et al. (1968), Connelly (1969).
4. Attitudes and Aptitudes of College Students.

Studies reported in this area in relation to the scales of the SRI are Veldman (1968), Breits & Butts (1969), Ruppel (1971), Slavik (1971).

5. Sex

Studies reported in this area in relation to the scales of the SRI are Veldman (1959, 1962, 1968).

The several researches the reference of which are cited above deal with the student teachers in the Colleges of Education. The present study has addressed itself to investigate certain behaviour correlates of student teachers with a view to bring about objectivity in teacher education. The investigator felt it good to give a brief abstract of some of the important research reports.

II. 6.1 Commitment to teaching

Barton (1970) explored the possibility of using the SRI to predict high versus low commitment to teaching which students entering teacher preparation would subsequently display in their post-graduate undertakings. The subjects used were 174 female students enrolled in the teacher education programme at the University of Texas, Austin, 79 of these students were secondary
education majors and 95 were elementary education majors. The results of this study indicated that one scale of the SRI (work) differentiated between the high commitment group and low commitment group at or below the .05 level of probability with the high commitment group having the highest mean. This finding was true for both elementary and secondary education majors.

II. 6.2 Teacher effectiveness

Veldman (1964) analysed teacher effectiveness. The subjects were female student teachers. Sixty four subjects were in the high level group, 62 in the middle, and 44 in the low. The three effectiveness groups were then compared on the scale scores of the SRI. Significant differences among the groups were obtained for the SRI scales indicating attitudes toward Self, Authority, Work and Reality. In all cases the high and middle effectiveness groups obtained higher scores than the low effectiveness group.

Veldman (1965) studied teacher effectiveness by semi-projective test information in the form of a Sentence Completion Test. It was blindly rated by clinical judges for 34 students who had been rated highly effective by
their supervising professors and 34 who had been rated low in effectiveness. Only 34 of the 68 female student teachers were rated similarly by both supervisors and clinical judges. The remaining 17 high and 17 low rated cases were then compared on the ten scores of the SRI. The results of the two grouped analyses of variance computed for each of the ten scores available from the SRI indicated that student teachers rated as effective scored significantly higher than student teachers rated as ineffective on the following scales: (1) Self; (2) Authority; (3) Reality; and (4) Total.

McLendon (1965) in his doctoral work used SRI to examine perceptions in multiple areas of the phenomenal world and their predictive value with respect to teaching effectiveness. An original sample of student teachers in various criterion groups of supervisor-judged teaching effectivenesses were studied for differentiating patterns of self-reported perceptions. The patterns were used for predicting criterion group membership to individual student teachers in the original sample and for those in a replication sample. The original sample included 188 women student teachers in secondary public school classroom, and the replication sample included 216 women student
teachers in secondary classrooms. Teacher Rating Scale were used by supervisors for discriminating qualitative differences in teaching effectiveness among the student teachers, and systematic rules were applied for assigning them to criterion groups.

The 188 student teachers in the original sample were assigned to three approximately equal criterion groups (53 high, 72 average and 63 low). The discriminant function associated with approximately 81.7 per cent of total discrimination among the criterion groups indicated significant differences (.05 level) produced primarily by differences in self-reported perceptions of Work, Authority and Self. When the student teachers were assigned to two groups (91 high, 97 low), the discriminant function indicated significant differences (.01 level) produced primarily by differences in perceptions of Work, Authority, Hope and Children. Both analyses supported the hypothesis that student teachers in different categories of supervisor-judged effectiveness express different perceptions in delineated areas of the phenomenal world. Discriminant weights from discriminant functions in both analyses of the original sample were applied to secure in the phenomenal areas to produce individual discriminant scores, used for
predicting criterion group membership for each student teacher. Membership in one of three criterion groups was predicted approximately 14 per cent beyond chance (.01 level of significant). Discriminant weights were applied to scores in phenomenal areas for 216 student teachers in the replication sample (71 high, 78 average, 67 low; also 116 high and 100 low). Membership in one of the two criterion groups was predicted approximately 10 per cent beyond chance (.01 level of significance). With the exception of replication of predicted membership in one of the three criterion groups, results of analyses supported the hypothesis that differences in self-reported perceptions enable prediction of supervisor-judged effectiveness significantly beyond chance.

II. 6.3 Personality dimensions of student teachers

Veldman (1960) examined personality ratings through factor analysis. The factors that emerged were: (1) the conscience-rulled stability versus unprincipled impulsiveness; (2) creatively intelligent autonomy versus dull, unthinking dependence; (3) loving versus coldly hostile; and (4) relaxed, outgoing optimism versus anxious, self-pre-occupied pessimism. The SRI scale scores were correlated with the above four factors.
The results indicated that factor I (conscience-ruled stability versus unprincipled impulsiveness) correlated with the SRI scale scores Authority, Work, Reality and Total. Factor II (creatively intelligent autonomy versus dull, unthinking dependence) correlated with the SRI score self. Factor III (loving versus coldly hostile) correlated with the SRI scale scores Others, Children, Authority and Total. And Factor IV (relaxed, outgoing optimism versus anxious, self-preoccupied pessimism) correlated with the SRI scale scores Self, Others, Authority, Reality and Total.

Bowen and Rickek (1968) designed a study to explore the relationship between the SRI variables and Jungian typology as measured by the Myers-Briggs Type Indicator. Both instruments were administered to a sample of 149 female student teachers. In this group there were 78 secondary and 71 elementary student teachers. The age range was 18 - 22.

The following univariable correlations among the SRI variables and four Myers-Briggs type preference scores were statistically significant: (1) Extraversion/introversion with Self (p  .005), Others (p  .005), Children
Aside from those correlations existing among the SRI variables and the extraversion/introversion scores, the eight statistically significant univariate correlations obtained in this study are deemed too low to possess predictive value in individual situation. It was concluded, that there existed at least two significant ways in which the domains tapped by the four M-B type preference scores and the eight SRI variables were related.

In this study, Yeldman (1964) examined the personality correlates of selected biographical items of student teachers. A biographical information form designed by R. F. Peck for the Mental Health in Teacher Education project and the SRI were administered for 192 female seniors in student teaching. The SRI variables were used as criteria for each of the 30 biographical items studied.
Criterion data were submitted to separate single classification analyses of variance, one for each of the dependent variables using each of the 30 biographical items in turn as a basis of defining groups of subjects to be compared. Group sizes were adjusted in each analysis to exclude subjects with missing scores for a particular analysis. The data were generally complete. One or more SRI scales significantly differentiated subject status on the following biographical variables: Age of the subject, father's age, father's social activities, mother's age, mother's education, visual defects, respiratory disorders, high school average, number of high school activities, best trait in high school, worst trait in high school, subject matter field, teaching level, college activities, and previous employment.

Bown and Richek (1969) studied self-perceptions versus extraversion/introversion of student teachers. They used the SRI to explore the relative 'warmth' and 'positiveness' of extroverted and introverted prospective teachers. The sample consisted of 149 prospective teachers of which 71 were majoring in elementary education and 78 were majoring in secondary education. The students were in the age group of (19 - 22) years.
Single classification analyses of variance were made. In one analysis, introverts and extroverts were compared without regard to teaching level. In another analysis, elementary school introverts and elementary school extroverts were compared. Subjects were classified as extroverts and introverts entirely on the basis of the direction of the preference scores on the Myers-Briggs Type Indicator; strength of preference was not considered in this analysis because of the small number of introverts among the prospective elementary school teachers. The introverts (N = 49) scored significantly lower than the extroverts (N = 100) on the following SRI scales: (1) Self, (2) Others, (3) Children, (4) Authority, (5) Parents, (6) Hope, (7) Total.

The elementary introverts (N = 19) scores significantly lower than the elementary extroverts (N = 52) on the following SRI scales: (1) Others, (2) Authority, (3) Total. However, the elementary school extrovert and introvert groups did not differ in the positiveness of their attitudes toward children. This finding was very interesting. It would seem that the introvert who choose elementary school teaching would maintain as positive an attitude toward children as her extroverted counterpart did.
Connelly (1969) in his doctoral dissertation used the SRI to explore changes in certain aspects of the self concepts of prospective teachers within the frame work of phenomenological theory. The subjects used were 100 female elementary student teachers, 105 female secondary student teachers and 30 male secondary teachers at the University of Texas, Austin.

The study reported a series of intercorrelations between SRI scores and pre and post student teaching measurements of ideal - self discrepancy. Ideal-self discrepancy scores were measured with the Interpersonal Impressions Survey (IIS). The results indicated that among the elementary group prior to student teaching, only the ratio score reached significance (higher 'Other' related scores as compared to 'self' related scores were associated with high self-ideal discrepancies); the elementary group had a generally positive set of responses to the SRI associated with more self-ideal congruence toward the conclusion of student teaching; among the secondary female group on the pre-I-S measure, only the children scale score was significant indicating positive attitudes toward children were associated with low I-S
discrepancy scores. For the post-I-S discrepancy, only the reality scale was significant.

Bohn, Butt and Raun (1968) studied teacher characteristics as predictors in successful implementation of an innovative curriculum. A change that has taken place in the methodology of teaching science - a change from teaching to impart specific information to teaching students how to process the information of their experiences, has led to questioning whether a relationship exists between selected teacher characteristics and success in teaching such a curriculum. Factors of sex, grade level talks, school district, years of teaching experience, and academic performance in science were examined for significance.

The sample of 110 elementary teachers from six school districts were participants in an inservice teacher education programme prior to teaching SCIENCE - A PROCESS APPROACH.

Student achievement, which was used as an index of teaching success was assessed by administering the AAAS Competence Measure at the conclusion of each exercise. A minimum of six exercises were taught by each teacher.
Multiple linear regression analysis showed that the variables of sex, grade level, school district, years of experience, and hours of science accounted for 45 percent of the variance in the student achievement score. Of these, sex, grade level, and years of teaching experience made significant independent contributions to predicting teacher success.

II. 6.4 Attitudes and Aptitudes of student teachers

Breit and Butta (1969) in a study examined the relative effectiveness of a teacher education programme given at the preservice level and at the inservice level in the development of certain teacher competencies: knowledge of science content, positive perception of goals and methods of curriculum innovation, and facility in coping with a learning environment which emphasises the child's responsibility for his own learning. Also was examined the relationship of certain factors to the successful development of teacher competencies by programme participants. These factors were: initial level of competence, intensity of initial attitudes, teaching experience, amount of college science, and number of years since last science course.
Four groups of individuals were included in this study. The preservice version of the programme was given to 58 students enrolled in an undergraduate science methods course at the University of Texas. Fifteen students enrolled in an undergraduate social studies methods course serve as a control for the group above. The inservice version of the programme was given to 28 elementary school teachers enrolled in an elementary school science workshop. Eleven elementary school teachers enrolled in the summer school at the University of Texas served as a control for the above group.

The results of the study indicated that the total experience resulted in an increase in knowledge of the processes of science and a change in instructional decision behaviour for both preservice and inservice participants. Limitations in the design of study did not permit conclusions relative to the comparative effectiveness of the programme at the two levels. It was also found that the total experience did affect attitude, but only to a limited extent. In general, it was concluded that preservice and inservice teachers who experience a similar teacher education programme exhibit some similar changes and some contrasting changes. Further study of these
changes seemed to support the conclusion that teacher education programmes need to be constructed to meet the differing needs of the participants.

Ruppel (1971) in his doctoral study of 'correlates of university students' counselling approach preferences' explored the possibility of using the SRI to examine the relationship of client personality and problem type to counselling approach preferences. The subjects used were 34 male and 51 female under-graduate students in educational psychology courses at the University of Texas at Austin. The results indicated that the female group which differed significantly at the .05 probability level: (1) those who had a questioning approach preference had a lower mean score on the 'Other' scale than did those who had a 'supporting approach' preference; (2) those who had a 'reflection of feeling approach' preference had a lower mean score on the 'authority' scale than did those who had a supporting approach preference; (3) an analysis of variance also indicated that the counselling preference groups questioning approach, advice-giving approach, reflection of feeling approach, and supportive approach differed significantly on the Intensity scale and on the Total scale of the SRI, but Scheffe's method of post-hock
comparisons did not indicate that these group means significantly differed; (4) the preference for an information-giving approach correlated significantly with the 'work' scale at the .05 level of significance; (5) the preference for a reflection of feeling approach negatively correlated at the .05 level with the Work scale; and (6) the preference for a supporting approach correlated significantly at the .05 level with the Children, Others and Intensity scales.

The following counselling approach preferences of males correlated significantly at the .05 level with SRI scores: (1) preference for a supporting approach correlated with the Self, Others, Hope, and Total scale scores; and (2) preference for a reflection of feeling approach correlated with Others and Hope.

Slavik (1971) in his doctoral study 'the relationship between attitudinal similarity and peer evaluation of prospective teachers' have examined the relationship between attitudes as measured by the SRI and the peer ratings of the prospective teachers regarding their intelligence, liking to work within a teaching situation etc. It was expected that both the peer ratings given and the
peer ratings received would be negatively correlated with attitudinal similarity. However, the results of the data analysis did not support the expectations of the study for any one of six peer characteristics.

An attitude profile similarity measure was substituted for the total item response discrepancy measure. The new measure was formed by computing ipsative attitude scale scores and comparing these scores with a D score measure (Cronbach and Glaser, 1953) for each pair of attitude profiles. Then, the above original expectations were confirmed for one of the peer rating scales which was concerned with 'liking'. For peer ratings of 'intelligence' and 'like to work within a teaching situation' attitudinal similarity influenced the peer ratings received but the manner of influence was dependent upon the sex of the ratee. It was suggested that ipsative SRI scale scores may be independent measures of the attitudinal similarity observable in overt behaviour which influences peer ratings.

II. 6.5 Sex differences

Veldman (1959) studied sex differences among sophomore education students. The SRI was used to distinguish
between female non-elementary education majors and male non-elementary education majors. The subjects were drawn from a sample of approximately 500 sophomore students enrolled in an introductory education psychology course. But the data analyses were made on 212 female non-elementary education majors and 59 male non-elementary education majors. The results indicate that females scored significantly higher than the males on the following scales of the SRI: (1) Others (P = .05); (2) Children (P = .001); (3) Work (P = .05); (4) Authority (P = .05); and (5) Total (P = .001).

Veldman (1962) examined the personality characteristics of education students as a function of sex, course level, major field, and the effects of two years of college. The SRI was administered to sophomore and senior students. The study was concerned with the following questions with respect to the SRI: Are there any significant differences in average test scores for males and females? Are there any differences between the entire groups of sophomores and seniors? Do any differences between sophomore and senior averages appear or disappear when only subjects who were retested are
considered? Are there any reliable interaction effects between the sex and the level of testing? Do female seniors majoring in elementary education differ from those majoring secondary education? Do male seniors majoring in physical education differ from those majoring other fields?

In the analyses concerning the gross sex and educational level comparisons on the SRI scale scores all the scores except Work and Hope were significantly higher for females than for males. All of the differences in the sex comparisons were significant at .01 level except for reality which was significant at the .05 level. The senior level means were found to be significantly higher than those of sophomore means for all scales except Others and Authority (Self, Work, Parents, Total and Ratio at the .01 level); Children, Reality and Hope at the .05 level. The ratio score, however, showed a decrease from sophomore to senior samples. The only significant interaction effect was for the Others scale. (P = .01), where males increased markedly, while females showed moderate decrease scores in the two levels of testing.
No significant differences were found between males majoring in physical education and those majoring in the other fields on the SRI scales. However, female education majors produced significantly higher means on scales Children (P = .05), Parents (P = .05), Hope (P = .05), and Total (P = .01) than did secondary education majors.

Yeldman (1968) studied the effects of sex, attitudes and aptitudes on the academic achievement of college freshmen. This study represents an attempt to obtain more definite evidence regarding the determinants of sex differences in college grades, which have in the past been attributed to teacher biases favouring females.

Freshmen GPA, verbal and quantitative SAT scores and eight scales of the SRI were intercorrelated, and a series of regression analyses were carried to test specific hypotheses. The sample consisted of 1358 males and 957 females. The results clearly indicated that: (1) females grades were not higher than those of males on the average; (2) females achieved significantly higher grades relative to their aptitude test performance than did males; (3) self-reported attitudes toward work
made a substantial contribution to the prediction of grades, even when aptitudes were held constant; and (4) a substantial proportion of the sex differences in relative achievement could be shown to overlap with attitudes toward work.

II. 7 There are very few studies to date in the areas of teachers training and inservice training. George and Nair (1966) studied emotional stability and its relation to success in student teaching. Dosajh (1969) studied the relationship between the qualifications of teacher trainees and their B. Ed. marks. One of the finding of the study inter-alia, is kept the performance of science graduates is on the whole superior to that of arts graduates. Palsane (1963) studied the factors related to success in B. Ed. examination. Reddy (1966) reports a study about the morale of teacher trainees. Marr and Sabharwal (1969) studied the background of teachers and their motivation for teaching. Adval (1952) has investigated into the qualities of teachers under training. Garudacharya (1964) and Upasani (1966) enquired into the education of graduate teachers and primary teachers respectively. Srivastava (1965) studied the impact of inservice programme on teachers. Roy (1965)
studied the relationship between the measures of success of teachers as students under training and teachers in schools.

Though these and other studies tried to identify the essential dimension for successful teaching, they failed to give a conclusive and definite trend. In the absence of the theory of teaching the solutions to the problems in this area continues to elude the researchers and the researchers become a piece-meal affair.

II. 8 A number of studies were reviewed in this chapter which investigated n Ach., and measures of self-perception in relation to several variables. By scrutinizing the results arrived at in these studies no conclusive trend is evident between n Ach. and sex; n Ach. and SES; n Ach. and academic achievement, and self-perception and personality dimensions; perception and academic performance. It is also evident from these studies that in most of the investigations the samples were drawn from the high school population and only in few cases from colleges. But surprisingly studies conducted with the students of education are very few. Problems can be tackled and solutions could be obtained only if research is conducted in a systematic way. Without any scientific
investigation no one could offer any solution for certain to any problem and more so to the problems in teacher education. Therefore, the investigator is of the opinion that more and more researches should be taken up with the population of student teachers to make education courses more meaningful and attractive to the intelligent young people.

In the next chapter the methodology of the investigation, tools employed to collect data were discussed.