CHAPTER VI

FINDINGS AND THEIR IMPLICATIONS

The previous five chapters deal with the detailed methodology of the present investigation including identification and definition of the problem, review of the previous researches in this field, techniques of identifying over- and underachievers, details of the tools used, the methodology of data collection and analysis after the analysis and interpretation of data is completed. The investigator is led to certain important conclusions and inferences by using statistical tests. The present chapter provides a comprehensive list of findings that have emerged as a result of this investigation. The findings have been listed along with significant quantitative informations. The implications of these findings for theory and practices of education, and for further researches in this area have also been discussed.

6.1 FINDINGS:

The study leads to the following findings:

1. The correlation between achievement in science and general intelligence was found to lie between 0.29 and 0.60. These results corroborate with the results obtained by other researchers whose findings have been reviewed in the present study. The correlation
coefficients greater than 0.60 are rarely available in research literature indicating relationship between achievement and intelligence.

2. The number of over- and underachievers identified was between 15 and 16 percent of the total sample selected showing that about one third of the student population constitutes over- and underachievers.

3. The correlation coefficients between intelligence and most of the sociocultural and familial variables were found to be statistically significant showing that intelligence to some extent determined by sociocultural and family background.

4. Family income, parent education, family occupation and sociocultural background had significant correlations with academic achievement in science for all the samples.

5. In the case of boys overachievement is mainly determined by family income. The students whose family income is high are expected to achieve more than warranted by their cognitive abilities. The correlation coefficient between family income and overachievement scores was found to be 0.43 which shows that about 18% of the variance is explained by family income. This also indicates that about 82% of the variance in
overachievement remains unexplained.

6. Underachievement among boys were mainly determined by family income and parent education. The prediction of both overachievement and underachievement by family income in the same direction is contradictory. The position is clarified by negative correlation between parent education and underachievement. The people with high income can be classified in two groups one of those with high education and another of those with low education. The children of parents with low education are likely to be underachievers. The two potential predictors explain 26% of the total variance in underachievement scores leaving behind 74% variance as unexplained.

7. In the case of girls, overachievement in science is determined by sociocultural background and family occupation. These two variables explain about 25% of the variance in overachievement scores. The emergence of sociocultural background and family occupation as potential predictors of overachievement in girls is probably due to the fact that girls education is prevalent in well to do families. None of the predictor variables considered in this study happens to be potential predictor of underachievement in science.
8. When the samples of boys and girls were combined together, the overachievement in science was determined by family occupation alone. The variance explained in this case was 13.5% this shows that over 86% variance in overachievement is determined by factors not associated with sociocultural and family background.

9. Underachievement in the combined sample was determined by family income and parent education. The total variance explained by these variables was 29.4%.

10. The overall inspection of results obtained from multiple regression analysis show that sociocultural background and family occupation are important boosters of achievement in science. Similarly, low parent education is the root cause of underachievement. The family income plays a catalytic role in the sense that it boosts overachievement in the children of high educated rich and also boosts underachievement in the children of less educated rich.

6.2 IMPLICATIONS:

Every new research has its sources in the previous research literature in the concerned field, and in turn has some important implications for further research. Research of all kinds is directed towards the goal of discovering new.
knowledge about nature. So that the new knowledge might be utilized for making the human living more comfortable. A research study is meaningful if and only if its findings can be put to a profitable use to solve a problem of human interest. In the context of education nearly all research investigations are directed towards generating new knowledge about improving teaching-learning practices. All educational efforts must be aimed at improving the academic performance of students irrespective of their abilities, social background and motivational levels. A research study must help in achieving this objective by providing innovative theories and practices. In the present study, the investigator has made an attempt to study certain selected sociocultural and familial variables as determinants of over- and underachievement in science. The study has come out with several interesting findings as already listed.

Although the investigator does not claim to have made an exhaustive study of the problem in question, yet it is emphasized that various aspects of the problem have been examined as extensively and deeply as possible. The findings of this study have some important implications for educational practices in general and curriculum planning, teaching methods and evaluation techniques in particular. The findings also have some implications for further
research in this field. The detailed discussion of these implications follows.

6.2.1 Educational Implications:

The traditional pattern of education in our school is basically aimed at educating an average child. Here the term average refers to average in ability, opportunity and motivation. The practice of teaching 40-60 students in a class, conducted by a single teacher has certain important assumptions. First, it is assumed that all the students in a class are of the same level of intellectual ability. Second, it is assumed that all the students in a class come from the same sociocultural background. Third, it is also assumed that all the students are equally motivated for learning. Fourth, the methods followed by the teacher in teaching and testing are equally effective for every student in the class. That these assumptions are not true is a matter of common sense. The psychology of individual difference states that every individual is different from every other individual in the world in all aspects of personality. Therefore, it is obviously highly unreasonable to place every child in the same kind of learning situation. It need not be emphasized that all educational efforts are aimed at improving academic performance which can be interpreted in three different ways. Firstly, a student's score on an
achievement test may be compared with those of other students of the group to which he belongs in such an interpretation those with superior achievement are referred to as "high achievers" and those with poor achievement are known as "low achievers". Secondly, the performance of a student may be compared with a predetermined performance standard known as Criterion. Those who perform better or equal to the criterion level are referred to as "masters", and those who fail to achieve upto the criterion are known as "nonmasters". Thirdly, a student's performance may be compared with his own ability to perform. In other words, what he achieves is compared to what he can achieve. If his actual achievement is more than what is expected of his potential he is referred to as "overachiever" and the one achieving below the level expected of his potential is called an "underachiever".

Each of these three kinds of score interpretation tends to divide the student population in three groups of which two extreme groups are of extra significance. The educators are more concerned about those who fail to achieve to the level expected of their ability. In a normal classroom setting meant for average students both over-achievers and underachievers are at a disadvantage. The underachievers find it difficult to cope with the teaching
methods followed in the class and the overachievers do not find the teaching learning process a challenging affair. The factors causing over and underachievement may be broadly categorised into three groups. First, there are factors associated with a teaching learning environment including the curriculum, textbooks, the teacher and other physical facilities available in the school. Second, there are variables that are internal to the learner such as interests, attitudes, study habits, vocational and educational aspirations, anxiety level and other personality factors. Third, there are variables associated with sociocultural and familial background.

The present study has investigated the role of the variables included in the third category. These variables are uncontrollable and therefore can not be subjected to any kind of modification and manipulation but their damaging role can not be ignored. It is rightly said that good sociocultural background cannot be a substitute for a superior ability, but poor sociocultural background can suppress a superior ability. This means that good schooling cannot be a substitute for superior ability but poor schooling can hamper the role of superior intellectual abilities in learning. Moreover poor schooling accompanied by poor sociocultural background causes serious damage to
the child's learning capacity. As already mentioned the sociocultural background cannot be controlled or manipulated. Therefore, we can check or reduce the incidence of underachievement by improving educational practices.

The above discussion points to at least three types of educational programmes to be carried out within the same school system. A 'compensatory education' programme should be conducted in every school for underachievers in every subject. Similarly, an 'accelerated education' programme should be conducted for overachievers and the normal curriculum may be in practice for average achievers. The present study has indicated that poverty and poor parent education are the two most important factors that can be used to predict over- and underachievement. The students of poor homes may be identified at an early stage and placed in 'Compensatory education' programme along with normal education. Similarly, enrichment programmes may be designed for children coming of better homes and studying in the same school. The special care should be taken of children whose parents are less educated.

6.2.2 Implications for research:

The findings of the present study have indicated that percentage of variance in overachievement explained by
sociocultural and familial variables considered in this study varies from 13.5 (combined) to 25 (girls). This leads to the conclusion that about 75 to 85 percent variance in overachievement scores is due to some other factors not considered in this study. Similarly, about 70 to 75 per cent variance in underachievement scores could not be accounted for sociocultural and familial variables. This means that there are other factors which act as determinants of underachievement in science. These variables may be associated with school programmes and psychological aspects of personality of students. It is therefore, desirable to carry out research study in order to examine the relative role of school variables to under- and overachievement in science. Similarly, the role of motivational variables in determining over- and underachievement may be examined.

This study has been restricted to the study of under- and overachievement in a single subject. Similar studies are necessary in other school subjects also. since the over- and underachievement is specific to specific subjects, research study in different subjects may present a different picture of the phenomenon. the future research in this area should answer the following questions.

1. What are the variables that determine under- and overachievement in science in addition to sociocultural and familial variables?
2. What is the relative role of different personality variables as determinants of over- and underachievement in different school subjects at different levels of schooling?

3. What is the contribution of motivational variables to over- and underachievement in one or more school subjects?

4. What is the difference between the predictive values of various personality, motivational and sociocultural variables for over- and underachievement in any two school subjects?

5. What is the relative contribution of different variables associated with school programme as determinants of over- and underachievement?