CHAPTER V

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In the preceding chapter, the obtained results have been presented and described. In this chapter, an attempt has been made to examine critically the obtained results in the light of the foregoing studies and various hypotheses proposed in Chapter I.

A) MULTIVARITE ANALYSIS:

HYPOTHESIS 1: "The subjects of science faculty would have higher n-achievement than the subjects of arts faculty".

The results of the present study (Table 4) show that the main effect of faculty is significant ($F = 183.733$, $df_1 = 1$, $df_2 = 408$; $P < .001$). As per Table 1 the means of n-achievement scores are 20.311 and 26.160 respectively for the arts and science faculty subjects, thus science faculty subjects scoring higher than the arts faculty subjects. The results support hypothesis. The effect size (partial eta square) for the main effect of faculty on n-achievement is substantial (0.310), meaning that the faculty explains 31.0 percent variance for n-achievement (Table 4). Generally the students of science faculty join the professional courses. Rather they are selected for the professional courses as these courses offer challenge to them.
Professional education offers challenge and opportunities to take risks with explicit knowledge of results and provides a feeling of accomplishment. In general, people with high n-achievement tend to prefer tasks which require personal initiative and inventiveness and which present some difficulty, a challenge rather than the assurance of the success. Thus, the difference between n-achievement can be attributed to differences in training received by the arts and science faculty students. On the basis of above description it can be stated that n-ach is, to some extent, responsible for choosing science course.

HYPOTHESIS 2: "The boys would have higher n-achievement than the girls".

The results (Table 4) show that the main effect of gender is insignificant (F = 2.375) As per Table 1, the means of n-achievement scores are 22.903 and 23.568 respectively for male and female. The results reject the hypothesis stating that the boys would have higher n-achievement than the girls. Achievement, therefore, should not be considered a part of the male role. The role of women has changed considerably over the last few years. More women are acquiring college education, the enrollment of women in professional colleges has been increasing steadily, executive recruiters are constantly searching for women executives. Women are trying to adjust in the traditionally male dominated world. Hence, the main effect of gender for n-ach may be insignificant.
HYPOTHESIS 3: "The subjects of science faculty would have more internal locus of control than the subjects of arts faculty".

As per Table 1, the means of locus of control scores are 10.296 and 8.621 respectively for the arts and science faculty subjects. The main effect of faculty (Table 4) is significant for locus of control (F=41.863, df₁ = 1, df₂ = 408; P< .001). Since the lower score on locus of control scale denotes internality, it can be concluded that the subjects of science faculty have significantly more internal locus of control than the subjects of arts faculty. Thus, the results are in agreement with the hypothesis. The effect size (partial eta square) for the main effect of faculty on locus of control is reasonable (0.093), meaning that the faculty explains 9.3 percent of variance in locus of control (Table 4). The science students generally believe in "skill". They have more practical experiences with scientific inventions. They believe in personal responsibility for one's own successes and failures. They are exposed to new scientific thoughts and inventions which result in loosing their faith in externally controlled forces. Science students are given to internalise the fact that hard work and regular input of study hours are the sine-qua-non of success in science curriculum, and hence, it was believed that the science students may be more internally controlled than the arts students. This assumption is supported by the findings of this study.
HYPOTHESIS 4: "The girls would be more externally controlled than the boys".

Even today, differential treatment is given to boys and girls in our culture. More freedom is being enjoyed by the male children. Even their field of experiences are more than that of girls. We generally notice a more favourable parental attitude towards a male child as compared to a female child. Hence, it was assumed that significant sex differences exist in locus of control, with girls being more external than boys. But supporting evidence is not seen in this study. The mean locus of control scores of boys and girls are 9.505 and 9.413 respectively. (Table 1). The main effect of gender (Table 4) is insignificant for locus of control ($F = 0.127$). The results reject the hypothesis stating that the girls would be more externally controlled than the boys. Parental attitude towards a female child has changed considerably over the last few years. By and large, now a days parents do not exhibit differential child rearing practices for boys and girls. Achievement among girls is also emphasized, valued and encouraged. Boys and girls both are reinforced to believe that they are the makers of their own destiny. The outcome would be the result of their own efforts and hard work. Hence, the main effect of gender for locus of control may be insignificant.

HYPOTHESIS 5: "Subjects of arts faculty would be more anxious than the subjects of science faculty".

As per Table 1, the means of anxiety scores are 34.131 and 27.097 respectively for the arts and science faculty students. For anxiety
(Table 4) the main effect of faculty is significant ($F = 137.444$, $df_1 = 1$, $df_2 = 408$, $P < .001$), thus arts faculty subjects are found to be more anxious than the science faculty students. The findings support the hypothesis. Table 4 reveals that the effect size (partial eta square) for the main effect of faculty on anxiety is substantial (0.252), meaning that the faculty explains 25.2 percent of variance in anxiety. The science faculty students have specific roles they would undertake after the completion of the course, where as arts faculty students, to a greater extent, are uncertain about what they would pursue and their goals are not quite specific. The awareness of role and professional identity might influence the intensity of personality traits and their motives. The degree of certainty of the future is widely separated among the science and arts faculty students. Where as the former are sure to secure some kind of job or join job-oriented courses, the later are mostly at the mercy of the situation. Thus, the arts faculty students might have experienced more anxiety than science faculty students.

**HYPOTHESIS 6**: "Males and females would differ on anxiety".

Gender differences in anxiety have been obtained in many studies. One explanation for the sex differences in anxiety scores, offered by Sarason et. al. (1960) is that boys are more defensive in admitting anxiety. In boys such admission is not culturally accepted; it is considered unmasculine. In case of girls, whether or not they admit anxiety feelings, their femininity is not called into question. But the present study (Table 4) shows that gender is unrelated to anxiety ($F = 0.145$). The
means anxiety scores for boys and girls are 30.500 and 30.728 respectively (Table 1). Thus, the findings of the present study are in agreement with the findings of earlier researchers who have failed to obtain a difference in the anxiety level of boys and girls (Iwawaki et. al. 1967, Sinha & Sinha 1976).

**HYPOTHESIS 7:** "The students having higher scores at the S.S.C. examination tend to opt for science curriculum".

As per Table 1, the means of S.S.C. marks are 363.291 and 404.422 respectively for the subjects who joined arts and science faculty at H.S.C. Thus the students having higher scores at the S.S.C. examination tended to opt for science faculty as compared to arts faculty ($F = 96.202$, $df_1 = 1$, $df_2 = 408$, $P < .001$).

In recent years, there has been a growing realization among the students that science curriculum offers many openings and better career prospects to them. Hence, most of the potentially superior students join science curriculum.

**HYPOTHESIS 8:** "The science faculty subjects would score more marks than the arts faculty subjects at H.S.C. level".

For H.S.C. marks, the main effect of faculty is significant ($F= 169.333$, $df_1 = 1$, $df_2 = 408$; $P< .001$). As per Table 1, the means of HSC marks are 333.252 and 392.694 respectively for the arts and science faculty subjects. Thus, the results are in line with the hypothesis. The
effect size (partial eta square) for the main effect of faculty on HSC marks is substantial (0.293), meaning that the faculty explains 29.3 percent variance in HSC marks. Thus, the academic achievement of science faculty subjects is more than arts faculty subjects at HSC level.

Better performance on the part of Science students is obvious because science subjects have higher ceiling of marks obtained than arts groups subjects. Besides, science students generally are more punctual and hard working than arts students. Science courses offer challenge to the students and provide a feeling of accomplishment. The reason for the difference in academic achievement of arts and science students may also be ascribed to their (science students) parents who do not perhaps give more emphasis on general education, they are more oriented to technical courses for their children.

**HYPOTHESIS 9:** "Academic achievement of males and females differ significantly".

For S.S.C. marks and also for H.S.C. marks the main effect of gender is significant. For S.S.C. marks, $F = 7.712$, $P < .01$ and for H.S.C. marks, $F = 11.045$, $P < .001$. As per Table 1, the means of S.S.C. marks are 378.034 and 389.680 respectively for males and females. The means of H.S.C. marks are 355.384 and 370.563 respectively for the male and female subjects, thus females scoring higher than males at both the levels, S.S.C. and H.S.C. The effect size (partial eta square) for the main effect of gender on S.S.C. marks is, however, small (0.019) meaning that the gender explains 1.9 percent variance in S.S.C. marks. The effect size
(partial eta square) for the main effect of gender on H.S.C. marks is also small (0.026) meaning that the gender explains 2.6 percent variance in H.S.C. marks. Thus at S.S.C. as well as at H.S.C. level, females scored higher than the males, the findings support the hypothesis stating that the "academic achievement of males and females differ significantly.

The reason for girls outstanding boys in the academic achievement may be their sincerity and punctuality in studies.

B) CORRELATIONAL ANALYSIS: The variables in the present research include five continuous variables n-achievement (N-Ach), Locus of control (LOC), Anxiety (ANX), S.S.C. marks (S.S.C.) and H.S.C. marks (H.S.C.) and two dichotomous variables, faculty and gender. The five continuous variables have also been referred to as psychological variables. The two dichotomous variables have been coded as dummy variables. (Faculty : Arts = 0, Science = 1, Gender : Male = 0, Female = 1).

HYPOTHESIS 10: "Higher n-achievement is associated with Internal Locus of Control".

The reference to Tables 5 to 9 indicates that the n-achievement and locus of control are negatively correlated. The correlations between n-achievement and locus of control is -0.870 (P < .001) for arts - male subjects; -0.709 (P < .001) for arts-female subjects; - 0.563 (P < .001) for science-male subjects; - 0.433 (P < .001) for science-female subjects and -0.682 (P < .001) for the entire sample.
Since the higher score on Locus of control scale denotes external locus of control, these findings imply that higher (n-achievement) is associated with internal Locus of control. Thus, the results support the hypothesis.

Individuals with higher n-achievement are interested in excellence for its own sake rather than for the rewards it brings. They like to control their own destinies, rather than leave things to their fate, chance or luck. Platt and Eisenman (1968) found that the behavioural correlates of those who are internal tend to resemble the behavioural correlates of those who are high in n-achievement, for example, both internal and high n-achievement subjects persist longer at tasks, prefer skill determined rather than chance determined tasks. The parental behaviours that seem to foster internality resemble those parental behaviour that seem to foster high n-achievement. Hence, both these variables i.e. n-achievement and internality are closely related and this relationship is confirmed in this study.

HYPOTHESIS 11: "Need for achievement and anxiety would be significantly and negatively correlated".

A glance at Tables 5 to 9 indicates that there is a significant negative correlation between n-achievement and anxiety for arts-male subjects (-0.787, P < .001), arts-female subjects (-0.706, P < .001), science-male subjects (-0.241, P < .05) and entire sample (-0.655, P < .001). Only for science - female subjects, the correlation between n-achievement and anxiety is -0.184 which fails to reach .05 level of significance. However, the concerned correlation is negative too. Hence,
the hypothesis is retained. The negative trend of relationship between these two variables has been observed by a number of other researchers.

Raphelson (1957) reported that the pattern of results for high n-achievement subjects corresponds to the pattern of those with low anxiety, while the pattern of those low in n-achievement was similar to those scoring high on anxiety.

Studies by Mukherjee and Sinha (1967), Tripathi and Agrawal (1978) have shown low negative correlations between measures of n-achievement and measures of anxiety. The relationship between n-achievement and anxiety has been a matter of concern for those workers who were responsible for the development of the theory of achievement motivation. If the two variables are normally distributed, n-achievement will be higher in subjects having strong motive to achieve success, where as subjects with medium and low n-achievement will have a similar distribution of motive to avoid failure. The motive to avoid failure is similar to the anxiety drive, in that, it refers to that disposition of the individual due to which he experiences humiliations, discomfort and shame, when an activity results in failure. The tendency to avoid failure is an inhibitory tendency and the person with this tendency is liable to avoid achievement situations.

**HYPOTHESIS 12**: "External Locus of Control and anxiety are significantly and positively correlated".

An observation of Table 5 to 9 shows that external Locus of control and anxiety are positively correlated. The correlation between
these two variables are 0.818 (P < .001) for arts-male subjects, 0.678 (P < .001) for arts-female subjects, 0.251 (P < .05) for science-male subjects, 0.473 (P < .001) for science-female subjects and 0.636 (P < .001) for the entire sample. Thus, these findings support the hypothesis stating that external Locus of control and anxiety are positively correlated. Thus, Externals were found to be more anxious. The number of studies support the view that externality is associated with maladjustment and anxiety (Joe, 1971; Phares, 1976; Strickland, 1974). Nearly all these researches suggest that the relationships between I-E and maladjustment or anxiety are linear. Externals readily more admit to maladjustment or anxiety.

Efran (1967) noted that internals are more likely than externals to forget failure. Phares (1968) found that when subjects were given threatening feedback regarding their personality, internals were less likely to recall the unfavourable feedback than were externals. This indicates that externals have less need to repress unfavourable or threatening information. Externals, thus, do not seem to use the defence of repression, as a result, they may experience more anxiety than internals.

**HYPOTHESIS 13**: "Need for achievement and academic achievement would be positively correlated".

The reference to Table 5 to 9 indicates that n-achievement and academic achievement are positively correlated. The correlations between n-achievement and S.S.C. marks are 0.800 (P < .001) for
arts-male subjects; 0.702 (P < .001) for arts-female subjects; 0.709 (P < .001) for science-male subjects, 0.766 (P < .001) for science - female subjects and 0.789 (P < .001) for the entire sample. The correlation between n-achievement and H.S.C. marks are 0.668, 0.684, 0.728, 0.715 and 0.785 respectively, for arts - male, arts - female, science - male, science - female subjects and entire sample. All these correlations are significant beyond .001 level. Thus, the results support the hypothesis.

People with high n-achievement are more likely to work on a problem for a longer period of time and are more likely to reach a solution. They do well at tasks which offer challenge. Academic achievement may be a challenge to them. Hence, both these variables i.e. n-achievement and academic achievement are closely related and this relationship is confirmed in this study.

Individuals high in achievement needs are likely to take personal responsibility for success and generally perceive themselves as high in ability. The self-attribution for success increases their pride in accomplishment and accounts for evidence that they willingly undertake achievement oriented activities when the opportunity arises. (Atkinson, 1953; Green, 1963). The self-perception of high ability, in part, may account for the better academic achievement.

Subjects with high need for achievement have been shown to set moderate goals for themselves and to work harder when the chances for succeeding were moderate, i.e. when the probability of success was neither too high nor too low. These individuals prefer to work in situations in which they can take personal responsibility for the
performance necessary to achieve the goals, they are responsive to feedback and information of results.

**HYPOTHESIS 14:** "High academic achievement would be associated with internal Locus of Control".

A persual of Tables 5 to 9 reveals that the locus of control scores and academic achievement are negatively correlated. The correlations between Locus of Control and S.S.C. marks are -0.753, -0.589, -0.482, -0.320 and -0.580 respectively for arts-male, arts-female, science-male, science-female subjects and entire sample. The correlations between locus of control and H.S.C. marks for the same groups are -0.668, -0.546, -0.486, -0.465 and -0.578 respectively. All these correlations are negative and significant at 0.001 level. Since the scores on Locus of control scale denote externality, these findings imply that high academic achievement is associated with internality. Thus the results support the hypothesis. This finding supports those of Messer (1972), Boor (1973), Prociux and Breen (1975), Rupp and Nowicki (1978), Fry and Coe (1980), Frey mark (1985).

One of the possible reasons for obtaining such a relationship might be the belief that internals and externals have about the outcomes of their actions. The internals perceive their outcomes to be a consequence of their own actions, so they make an effort to attain higher grades or marks, whereas, the externals exert no effort to increase their achievement level as they believe that fate, luck, chance and circumstances are factors that influence their achievement.
As the scoring of the I-E scale was done in the external direction, higher Locus of control score meant more external control and lower score meant more internal control. Thus, the negative relationship between Locus of control and academic achievement would mean that higher Locus of control score (external control) would be detrimental to achievement where as internal locus of control would facilitate achievement.

When the sample was studied according to curricula (arts and science), this relationship held true. The direction and magnitude of the relationship was found to be the same for both, arts and science groups. This showed that this relationship did not undergo any change as a function of opting a particular curriculum. Thus, curriculum was found to have no effect on the relationship between Locus of control and academic achievement. Similarly, the direction of the relationship remained the same in gender-wise consideration of the sample.

Thus, hypothesis 14 is found tenable for the total sample, curriculum and gender.

HYPOTHESIS 15: "Anxiety would be negatively correlated with academic achievement".

Observation of Tables 5 to 9 reveals that anxiety and academic achievement are negatively correlated. The correlations between anxiety and S.S.C. marks are -0.861 (P < .001) for the arts-male subjects and -0.824 (P < .001) for arts-female subjects. The correlations between anxiety and H.S.C. marks are -0.760 (P < .001) for arts-male
subjects and -0.806 (P < .001) for arts-female subjects. For science-male subjects, the correlations of anxiety with S.S.C. as well as with H.S.C. marks are negative but insignificant. For science-female subjects, the correlation between anxiety and S.S.C. marks is -0.266 (P < .01), the correlation between anxiety and H.S.C. marks is negative but insignificant. In the entire sample anxiety is correlated with S.S.C. marks by -0.614 (P < .001), and with H.S.C. marks by -0.600 (P < .001). Thus, this hypothesis is only partially supported. It holds good for the arts subjects (males and females both). It does not hold good for science-male subjects. For science-female subjects, it holds good at the S.S.C. level but not at the H.S.C. level. If the group wise differences are ignored and if the entire sample is taken as a unit, it holds good for the entire sample. For the total sample, a significantly negative correlation coefficient has been found \{ r = -0.614 (S.S.C.) and r = -0.600 (H.S.C.) \}. This negative relationship, showing that high anxiety went with low academic achievement was in line with the findings of Robertin (1980), Jindal and Panda (1982) and Altrairy (1985).

This finding implies that highly anxious students are handicapped in properly utilizing their abilities. It has been suggested that anxiety has a facilitating effect in the case of less difficult task, but for a complex and difficult situation like higher education it may have an interfering effect on the scholastic performance. Thus, a person who has a moderately low level of anxiety is likely to get better grades than those who are anxiety - ridden. High anxiety paralyses the work capacity of an individual.
Thus, moderate level of anxiety does appear to be desirable. A high anxiety individual tends to be in a relatively high state of tension and arousal. A student who rates high on trait anxiety is likely to feel powerless. Demands of the curriculum or teachers raise his input level and he functions less effectively. A low anxiety student, conversely, is characteristically slow to react, tends to disregard potentially relevant stimuli. There is less input, less transformation activity and less response. 'Normal anxiety' enables a person to function adequately and acquire achievement behaviour.

Another probable reason for this may be that sometimes parents impose all their wishes on their children. High expectations on the part of the parents may lead to high anxiety which interferes with their children's capacity to utilize cognitive process, resulting in the lowering of achievement among the students.

**HYPOTHESIS 16**: "Prior academic achievement is a good predictor of the subsequent academic achievement".

The reference to Tables 5 to 9 indicates that the S.S.C. and H.S.C. marks are highly correlated. These correlations are 0.723 (P < .001) for arts-male subjects, 0.842 (P < .001) for arts-female subjects, 0.877 (P < .001) for science-male subjects, 0.787 (P < .001) for science-female subjects and 0.853 (P < .001) for the entire sample. Thus, the results support this hypothesis. The students who scored better at S.S.C. level also scored more at H.S.C. level. Thus, the consistency in academic achievement is found in this study.