Chapter V
Summary and Conclusions
CHAPTER – V

SUMMARY AND CONCLUSIONS

5.1 SUMMARY

In the present investigation, an attempt was made to study Academic Achievement of Post Graduate Students through Distance Education in Relation to Cognitive Styles, Self-Concept and Personality Types.

This chapter contains a summary of the total investigative activities - the problem, objectives, sample as well as design and tools used in the study. This chapter also includes the main findings of the present study and suggestions for further research in this area.

5.1.1 Statement of the Problem

The title of the present study may be stated as follows:

Academic Achievement of Postgraduate Students Through Distance Education in Relation to Cognitive Styles, Self-Concept and Personality Types.

5.1.2 Objectives

The following objectives have been formulated for the present study:

1. To find out the effect of Cognitive Styles on Academic Achievement of Male, Female and Total of Male & Female students studying through Distance Education.

2. To investigate the effect of Self-Concept on Academic Achievement of Male, Female and Total of Male & Female Students studying through Distance Education.

3. To study the effect of Personality Types on Academic Achievement of Male, Female and Total of Male & Female Students studying through Distance Education.
To workout the Interaction Effect of Cognitive Styles, Self-Concept and Personality Types on Academic Achievement of Male, Female and Total of Male & Female Students studying through Distance Education.

To compute the correlation indices for the variables under study separately for Personality Types of Male, Female and Total of Male & Female Students.

5.1.3 Hypotheses

The hypotheses formulated for the present study are as follows:

1. Field-Independent students (Male, Female and Total) will show significantly better Academic Achievement than that of Field-dependent students studying through Distance Education.

2. The Male, Female and Total sample of Male and Female students with high Self-Concept will show significantly higher achievement than the corresponding students with low Self-Concept studying through Distance Education.

3. The Extroverts (Male, Female and Total) will show higher Academic Achievement than Introverts (Male, Female and Total) studying through Distance Education.

4. The two-way interaction effects of two levels of Self-Concept, Cognitive Styles and Personality Types on Academic Achievement of Post Graduate Students (Male, Female and Total) studying through Distance Education, will be significant.

5. The triple interaction of Cognitive Styles, Self-Concept and Personality Types of Male, Female and Total will have significant effect on the Academic Achievement of the Post Graduate Students studying through Distance Education.

6. The inter-correlations among the variables of study will be positive and significant for Male, Female and Total sample of students.
5.1.4 Design of the Study

The study has been conducted on the pattern of $2 \times 2 \times 2$ factorial design. A factorial design is usually employed to study the effect of two or more independent variables operating simultaneously. The independent variable is that variable, the effect of which is seen on the dependent variable. The independent variables taken in the study are Cognitive Styles, Self-Concept and Personality Types and the Academic Achievement is a dependent variable. Sex as a Classification Variable has been considered as the fourth independent variable. Each independent variable has been manipulated at two levels. The two levels of Cognitive Styles are field dependent and field independent designated as $C_1$ and $C_2$. The two levels of Self-Concept are high Self-Concept and low Self-Concept, designated as $S_1$ and $S_2$, respectively. The levels of the variable of Personality Types are $P_1$ and $P_2$ standing for Introverts and Extroverts.

5.1.5 Sample

The sample pool for the present study consisted of 1500 Male and Female M.Ed. students of Himachal Pradesh University, studying through Distance Education. The accessible population comprised the Post Graduate Students of Himachal Pradesh University, Shimla from centres located in various cities of India, on the basis of random sampling. Eight centres were selected randomly as mentioned earlier.

The entire population of 1500 students was divided into two groups each on the basis of Cognitive Styles, Self-Concept and Personality Types. Kelley’s (1939) criterion for taking top 27 per cent and bottom 27 per cent was used, for dividing the sample pool into two levels each of Cognitive Styles and Self-Concept.
For the division of the sample into two Personality groups for Introversion and Extroversion, the following formula was used:

\[
\text{Below } M - 0.5 \sigma \text{ for Introverts and } \\
\text{Beyond } M + 0.5 \sigma \text{ for Extroverts}
\]

For the Analysis of Variance, the total sample of 128 Male and Female students was divided into 8 equal conditions as warranted by the Design of the Study. For the Analysis of Variance of Male Students, the sample size was 56 and for Female Students, it was 72.

5.1.6 Tools
Following tools were used for the collection of data:
- Group Embedded Figures Test by Witkin, Oltman and Ruskin (1971) to test Cognitive Styles.
- Personality Word List by Pratibha Deo (1971) to test Self-Concept.
- Eysenck’s Moudsley Personality Inventory by Jalota and Kapoor (1966) to test Personality Types.
- Achievement Scores of M.Ed. Examination of Himachal Pradesh University, 1997.

5.1.7 Analysis of Data
The data were analysed with the help of Analysis of Variance technique to determine the Main and Interaction effects of these factors, viz. Cognitive Styles, Personality Types and Self-Concept upon the dependent variable of Academic Achievement.

Sex was taken as a classification variable and Three-way Analysis of Variance was done by taking the factor of sex alongwith two other independent variables out of three mentioned earlier in different combinations. Also, inter-correlations were computed to determine the relationship of the variables under study.
5.1.8 Results of the Present Study

The F-ratio for the Main Effect of Cognitive Styles in respect of Female students was found to be 0.025. This was not statistically significant even at .05 level of confidence. This implied that the two levels of Cognitive Styles of Female students did not differ significantly from each other.

The F-ratio for the Main Effect of Self-Concept for Female students was obtained to be 2.553. It was not statistically significant even at .05 level of confidence. This indicated that Self-Concept of Female students had no influence on the Academic Achievement of Post-graduate students studying through Distance Education.

The F-ratio for the Main Effect for Personality Types was found to be 1.531. it was not significant even at .05 level of confidence. This indicated that Introvert and Extrovert Female students did not differ significantly with respect to their Academic Achievement.

The Interaction Effects of the three independent variables in double and triple combinations were interpreted for Female students in the following manner:

\[
S \times C
\]

\[
C \times P
\]

\[
S \times P
\]

\[
S \times C \times P
\]

- The F-ratio for Self-Concept x Cognitive Styles was observed to be 1.151 for Female students. It was not found significant even at .05 level of confidence.

- The F-value of interaction between the variables of Cognitive Styles x Personality Types was 0.369. It was not significant even at .05 level of confidence.
There is no significant Interaction Effect of Self-Concept and Personality Types even at .05 level of confidence as is evident from F-value of 0.223.

The Triple-Interaction Effect among the variables of Self-Concept, Cognitive Styles and Personality Types (SxCxP) is not significant even at .05 level of confidence. This is evident from the value of ‘F’ (1.532).

The results of ANOVA for Male students revealed the following:

- The F-ratio for the Main Effect of Cognitive Styles for Male students was obtained to be 1.058. It was not found to be significant even at .05 level of confidence. This indicated that Cognitive Styles of Male students had no influence on the Academic Achievement of Postgraduate students studying through Distance Education.

- The F-ratio for the Main Effect of Self-Concept for Male students was found to be 1.452. This was not statistically significant even at .05 level of significance. This implied that Self-Concept had no effect on the Academic Achievement of Male students.

- The F-ratio for the Main Effect of Personality Types was found to be 0.760. It was not significant even at .05 level of confidence. This indicated that Introvert and Extrovert Male students did not differ with respect to their Academic Achievement.

- The F-value of Double Interaction between the variables of Self-Concept x Cognitive Styles for Male students was observed to be 0.092. It was not significant even at .05 level of confidence.

- The F-ratio for the interaction of Cognitive Styles and Personality Types was 0.312. This value was not statistically significant even at .05 level of confidence.
The Double Interaction Effect among the variables of Self-Concept and Personality Types was significant at .05 level of confidence because the F-value was 6.737 in respect of Male students.

Since the F-value (6.737) is statistically significant at .05 level of confidence, t-ratios were computed to locate the exact nature of differences between groups. The t-ratios between the groups $S_1P_2$ & $S_2P_2$ and $S_2P_1$ & $S_2P_2$ are significant at .05 level of confidence. The differences between the rest of the groups are not significant. The significant t-ratios indicated that Extroverts with low Self-Concept are higher in Academic Achievement ($M= 151.71$) than the Extroverts with high Self-Concept ($M=137.86$). Extroverts with low Self-concept have higher Academic Achievement than Introverts with low Self-Concept ($M=139.07$).

The Triple-Interaction Effect of Self-Concept x Cognitive Styles x Personality Types was not statistically significant even at .05 level of confidence because the F-value was 0.866.

The results of ANOVA for the combined sample of Male and Female students are interpreted below:

The F-ratio for the Main Effect of Cognitive Styles for the combined sample of Male and Female students was obtained to be 0.948. It was not found to be significant even at .05 level of confidence. This implied that Cognitive Styles had no effect on the Academic Achievement of combined sample of Male and Female Students.

The F-ratio for the Main Effect of Self-Concept was 0.089. It was not found to be significant even at .05 level of confidence. This indicated that Self-Concept of combined sample of Male and Female students had no influence on the Academic Achievement of Post-graduate students.
The F-ratio for the Main Effect of Personality Types was found to be 0.022. It was not significant even at .05 level of confidence. It revealed that Introvert and Extrovert students in the combined sample of Male and Female students did not differ with respect to their Academic Achievement.

The F-ratio for Self-Concept x Cognitive Styles was computed to be 0.016 for the combined sample of Male and Female students. It was not statistically significant even at .05 level of confidence.

There was no significant Interaction Effect of the variables of Cognitive Styles x Personality Types even at .05 level of confidence, as is evident from F-value of 0.594.

The F-value of Interaction between the variables of Self-Concept x Personality Types was 1.568. It was not significant even at .05 level of confidence.

The Triple-Interaction Effect among Self-Concept, Cognitive Styles and Personality Types (S x C x P) was not statistically significant even at .05 level of confidence. This is evident from the value of ‘F’ (0.110).

The results of intercorrelations among the different variables of study are given in conclusions.

5.2 CONCLUSIONS

On the basis of analysis of data and discussion of results, the hypotheses were tested and verified. Some of them were retained and some were rejected. Efforts were made to draw useful conclusions. The results already arrived at by various studies directly or indirectly relating to the present study, wherever available, were also compared with the results of the present study.
The following conclusions were drawn in respect of the ANOVA for Female students:

- There was no difference between high and low Self-Concept Female Groups w.r.t. their Academic Achievement.
- The field-dependent and field-independent Female students were equal w.r.t. their Academic Achievement.
- There was no difference between the Academic Achievement of Female Introverts and Extroverts.
- The Interaction Effects of SxC, CxP, SxP and SxCxP on Academic Achievement were not significant even at .05 level of confidence for Female students.
- There was no difference in Academic Achievement of high and low Self-Concept groups of Male students.
- The field-dependent and field-independent Male students were equal w.r.t. their Academic Achievement.
- There was no difference in the Academic Achievement of Male Introverts and Extroverts.
- The Double and Triple Interaction Effects of SxC, CxP and SxCxP on Academic Achievement were not significant even at .05 level of confidence in respect of Male students.
- The SxP Interaction Effect was found to be statistically significant at .05 level of confidence for Male students w.r.t. Academic Achievement.

The perusal of t-ratios revealed the following results:

- The t-ratios between the groups $S_1P_2$ & $S_2P_2$ and $S_2P_1$ & $S_2P_2$ were significant at .05 level of confidence. The Extroverts with low Self-Concept were higher in Academic Achievement ($M=151.71$) than the Extroverts with high Self-Concept ($M=137.86$). Extroverts with low...
Self-Concept had higher Academic Achievement than Introverts with low Self-Concept (M=139.07).

- There was no difference between high and low Self-Concept groups of Male and Female students w.r.t. their Academic Achievement.

- The field-dependent and field-independent Male and Female students were nearly equal w.r.t. their Academic Achievement.

- There was no difference between the Total Sample of Male and Female Introverts and Extroverts on Academic Achievement.

- The Interaction Effects of SxC, CxP, SxP and SxCxP on Academic Achievement were not significant even at .05 level of confidence in respect of Male & Female students.

- There is positive and non-significant correlation between Self-Concept and Cognitive Styles, Introversion and Academic Achievement for Female Introverts; Self-Concept and Academic Achievement, Extroversion and Academic Achievement of Female Extroverts; Self-Concept and Cognitive Styles, Self-Concept and Academic Achievement, Introversion and Academic Achievement of Male Introverts; Cognitive Styles and Extroversion, Cognitive Styles and Academic Achievement, Extroversion and Academic Achievement of Male Extroverts; Self-Concept and Cognitive Styles, Introversion and Academic Achievement of Introvert Male and Female students; Self-Concept and Cognitive Styles and Academic Achievement of Extrovert Male and Female students.

- There is negative and non-significant correlation between Self-Concept and Introversion, Self-Concept and Academic Achievement, Cognitive Styles and Introversion and Cognitive Styles and Academic Achievement for Female Introverts; Self-Concept and Extroversion, Cognitive Styles and Extroversion and Cognitive Styles and Academic Achievement for Extrovert Female students; Self-Concept
and Introversion, Cognitive Styles and Academic Achievement for Male Introverts; Self-Concept and Cognitive Styles, Self-Concept and Extroversion for Extrovert Males; Self-Concept and Introversion, Self-Concept and Academic Achievement, Cognitive Styles and Introversion, Cognitive Styles and Academic Achievement for Male and Female Introverts; Self-Concept and Cognitive Styles, Self-Concept and Extroversion, Cognitive Styles and Extroversion, Academic Achievement of Male and Female Extroverts.

- There exists negative and significant correlation between Self-Concept and Cognitive Styles for Extrovert Female students.

5.2.1 Limitations

The applicability of the generalizations of the present study will be determined by the similarity of the conditions between the populations.

 Though the data are collected empirically and are analysed by statistical methods, yet certain errors might have remained undiscovered during the conduct of the study. The findings could be better interpreted conservatively by taking the sampling errors into consideration according to the laws of probability.

5.2.2 Educational Implications

Present study has implications for educational administrators, teachers, guidance workers and the learners.

The educational administrators will get an insight into the effect of the variables of the study on Academic Achievement. The negative correlations between Self-Concept and Introversion, Self-Concept and Academic Achievement, Cognitive Styles and Introversion etc. are pointers in this direction.

The teachers will gain sufficient insight into the interactive processes of the variables of Personality Types and Cognitive Styles in particular,
wherein, the interaction is significant for male students. The Extroverts with low Self-Concept showing higher Academic Achievement than the Extroverts with high Self-Concept, is revealing in the sense that, this result is in contradiction to the earlier findings of some of the investigators like Emmannel (1972) and Norma (1972) who reported a positive correlation between Self-Concept and Academic Achievement. The differences between low Self-Concept Extroverts and Introverts will also serve as indicators of teacher’s efforts to encourage Extroversion amongst the students.

Guidance workers will get necessary direction for their efforts from the results of the present study, in view of positive correlation with Self-Concept and Cognitive Styles, Self-Concept and Academic Achievement of Female students; Self-Concept and Academic Achievement, Introversion and Academic Achievement of Male Introverts, Self-Concept and Cognitive Styles, Cognitive Styles and Academic Achievement of Extrovert Male and Female students.

The learners will benefit from the results of the present study in the light of the positive and negative correlations existing among different variables of the study. They should highlight the variables responsible for positive correlation with Academic Achievement and reduce the effect of the causative factors for negative correlation with Academic Achievement.

### 5.2.3 Suggestions for Further Study

Further investigations may be carried out on the following topics:

- Academic Achievement of B.Ed. students in relation to aptitude towards teaching, achievement motivation, personality types, intelligence and other related variables.
- The study may be replicated on a wider sample for valid generalisations.
A comparative study may be planned for regular and distance education learners on the variables of the study.

A study may be planned to find out the Academic Achievement of different cultural groups with differences in value patterns.