CHAPTER-V

INTERPRETATION OF DATA

In the preceding chapter, the researcher sought to analyze and organize the data obtained after applying the method and procedure described in the III chapter of the present research report. Needless to say, the statistical values; F, ‘t’ and ‘r’ contained in the tables of the preceding chapter correspond to the objectives of the present study specified in the Introductory chapter.

It will be agreed that the contents of these two chapters, namely, first and third, are helpful in comprehending the relationship between the independent and dependent variables of each one of the seven objectives of the present study. Comprehension of the inter-relationship among variables, it is hoped, will facilitate the reader in gaining insight into the relationship that exists between the objectives of the study and the magnitude of their achievements. It will be recalled that the whole data has been classified in the preceding chapter under the following eight sections.

A- Institution’s learning climate wise academic achievement of IX\(^{th}\) graders studying in secondary schools of Meerut.

B- Institution’s learning climate wise academic achievement of high intelligent IX\(^{th}\) graders studying in secondary schools of
Meerut.

C- Institution’s learning climate wise academic achievement of average intelligent IX th graders studying in secondary schools of Meerut.

D- Institution’s learning climate wise academic achievement of low intelligent IXth graders studying in secondary schools of Meerut.

E- Institution’s learning climate wise academic achievement of high creative IX th graders studying in secondary schools of Meerut

F- Institution’s learning climate wise academic achievement of average creative IXth graders studying in secondary schools of Meerut

G- Institution’s learning climate wise academic achievement of low creative IXth graders studying in secondary schools of Meerut

H- Magnitude of relationship between learning climate of an institution and academic achievement of its students.

The chapter in hand attempts to interpret table wise statistical values of the above specified eight sections. The interpretation of data has been made in the present chapter in the same sequence as was applied in preceding chapter for Organization of Data. Accordingly, therefore,
interpretation of data has been made in the chapter in hand under the following sequence of sections:

A- Institution learning climate wise academic achievement of IX\textsuperscript{th} graders studying in secondary schools of Meerut.

B- Institution learning climate wise academic achievement of high intelligent IX\textsuperscript{th} graders studying in secondary schools of Meerut.

C- Institution learning climate wise academic achievement of average intelligent IX\textsuperscript{th} graders studying in secondary schools of Meerut.

D- Institution learning climate wise academic achievement of low intelligent IX\textsuperscript{th} graders studying in secondary schools of Meerut.

E- Institution learning climate wise academic achievement of high creative IX\textsuperscript{th} graders studying in secondary schools of Meerut.

F- Institution learning climate wise academic achievement of average creative IX\textsuperscript{th} graders studying in secondary schools of Meerut.

G- Institution learning climate wise academic achievement of low creative IX\textsuperscript{th} graders studying in secondary schools of Meerut.

H- Magnitude of relationship if relationship between learning climate of any institution and academic achievement of its students.
OBJECTIVE : I

A- Institution’s Learning Climate wise academic achievement of IX\textsuperscript{th} graders studying in secondary schools of Meerut.

Summary of the computations and statistical values (F & ‘t’) specified in Table 1 to 1.3 shows institution’s learning climate wise academic achievement of secondary school IX\textsuperscript{th} graders:

<table>
<thead>
<tr>
<th>Table NO</th>
<th>Description of table</th>
<th>Computations and resultant value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Academic Achievement of IX\textsuperscript{th} graders in High, Avg and Low learning climate</td>
<td>$\bar{x}<em>{1(H)}$, $\bar{x}</em>{2(A)}$, $\bar{x}_{3(L)}$, $F$, ‘t’, ‘r’</td>
</tr>
<tr>
<td>1.1</td>
<td>Academic Achievement of IX\textsuperscript{th} graders in High and Avg. learning climate</td>
<td>73.39, 67.76, 65.17, 11.39, --, --</td>
</tr>
<tr>
<td>1.2</td>
<td>Academic Achievement of IX\textsuperscript{th} graders in High and low learning climate</td>
<td>73.39, --, 65.17, --, 4.62**, --</td>
</tr>
<tr>
<td>1.3</td>
<td>Academic Achievement of IX\textsuperscript{th} graders in Avg. and low learning climate</td>
<td>--, 67.76, 65.17, --, 1.48*</td>
</tr>
</tbody>
</table>

An educational Institution exists to help the learners to learn. The more a learner learns, the higher is his academic achievement of learners.

Preceding research on factors which influence academic
achievement bears out the fact that it is not one factor which enters into
the phenomenon of a student’s achievement in class room. There are
several factors, some of which are resident within learner himself as for
example, his intelligence, thinking, reasoning, creativity, problem
solving, and memorization level. Besides the above, there are factors
which are related to the learner’s affective and psychomotor personality
characteristics as for example, self concept, level of aspirations,
extroversion, introversion, anxiety level, adjustment, emotional
intelligence and of course, different types of abilities skills.

At this stage, one can hardly miss the significance of
environmental variables which enter into academic achievement directly
or indirectly. Conditions within the school, home and community are
such factors which facilitate or inhibit the growth of learning or what is
generally termed as academic achievement. Needless to say all these
factors influence the learner’s achievement phenomena. Broadly
speaking, all such factors which influence learning can broadly be
categorized into extragenic & intragenic factors. The factors which
operate within the environment are extragenic and those which are
resident within the individual learner are intragenic. Teacher’s teaching
effectiveness, management of the learners in classroom situations, use of
audio-visual aids & learning climate are extragenic factors. On the other
hand the learner’s intelligence, creativity, level of aspiration, self concept,
aptitudes, traits of personality, to name a few, are intragenic factors.

The present study has confined its scope to one extragenic factor, namely, institutional learning climate and two intragenic factors, namely, intelligence and creativity. Needless to say both these two types of factors are independent variables having the potentiality to influence the magnitude of academic achievement. It is obvious that the learner’s outcome or academic achievement of learners in the classroom situations is a dependent variable.

For ascertaining the influence of leaning climate on the academic achievement of IXth graders who were studying in secondary institutions which differed in the quality of their learning climate i.e. (high quality, average quality and low quality), their academic achievement was subjected to one-way analysis of variance followed by ‘t’ test treatment of F value was found to be significant . As per table 1.0 IXth graders studying in schools characterized by high, average and low learning climate significantly differed in their academic achievement (F =11.39).

This observation implies that IXth graders studying in high, average and low quality of learning climate differ significantly in their academic achievement. If this be so, we saw, it can be concluded that learning climate of an institution significantly influences the academic achievement of the students studying in it.

Table 1.1 presents the academic achievement of IXth graders
studying in institutions characterized by high quality of learning climate and average quality of learning climate. The academic achievement data of the IXth graders of these two types of learning climate institutions: high and average learning climate when subjected to t-test of significance, shows a significant ‘t’ value ( ‘t’ = 2.99 ). The significance of ‘t’ value implies that :

1. IXth graders studying in secondary institution characterized by high and average learning climate institutions differ significantly in their academic achievement.

2. IXth graders studying in institutions characterized by high learning climate make better academic achievement (Mean $\bar{X}_H = 73.39$) in comparison to those IXth graders who are studying in institutions characterized by average learning climate ($\bar{X}_{Avg}=67.76$).

Table [1.2] presents the data pertaining to the academic achievement of the IXth graders studying in institutions characterized by high and low learning climate. These academic achievement of IXth graders studying in contrasting learning climate type of secondary institutions data when subjected to ‘t’ test of significance shows a significant difference in their academic achievement. This is borne out by the observation of significant ‘t’ value ( 4.62** ) on the basis of analysis of ‘t’ value. Following findings emerge from the above observations :
(1) Learning climate of an institution influences academic achievement of the IX\(^{th}\) graders studying in it.

(2) Institutions characterized by high quality of learning climate facilitate the academic achievement of their students ($\bar{X}_H=73.39$) in comparison to those IX\(^{th}\) graders who are studying in schools which are characterized by low level of learning climate ($\bar{X}_L=65.17$).

Table [1.3] presents the academic achievement of the IX\(^{th}\) graders after being subjected to ‘t’ test of significance under average and low learning climate. No significant difference has been observed in the academic achievement of IX\(^{th}\) graders who are studying in these two types of schools characterized by average learning climate ($\bar{X}_A=67.76$) and those who are studying in schools characterized by low learning climate ($\bar{X}_L=65.17$). The reason for this finding needs to be sought from an observation of insignificant ‘t’ value (1.48*) found out after processing the data.

In the context of the above statistical values under table [1.0 to 1.3] following generalizations can be drawn:

(1) Learning climate of an institution exerts a insignificant influence on the academic achievement of the students studying in it.

(2) The better is the learning climate of an institution; the higher is the academic achievement of the students studying in it.

(3) By and large, the academic achievement of a student of an institution is a function of its learning climate.
OBJECTIVE : II

B- Institution learning climate wise academic achievement of high intelligent IX\textsuperscript{th} graders studying in secondary schools of Meerut

Summary of the computations and statistical values (F & ‘t’) specified in Table 2 to 2.3 shows institution learning climate wise academic achievement of high intelligent IX\textsuperscript{th} graders studying in secondary schools of Meerut.

<table>
<thead>
<tr>
<th>Table No.</th>
<th>Description of table</th>
<th>Computations and resultant value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Academic Achievement of high intelligent IX\textsuperscript{th} graders in High, Avg and Low learning climate</td>
<td>$\bar{X}_1^{(H)}$ $\bar{X}_2^{(A)}$ $\bar{X}_3^{(L)}$ F ‘t’ ‘r’ 2.55 - -</td>
</tr>
</tbody>
</table>

Table 2.0 reveals an insignificant F value (F-2.55\textsuperscript{*}) after subjecting academic achievement data of IX\textsuperscript{th} graders studying in three types of secondary institutions characterized by high learning climate, namely, average learning climate and low learning climate. This finding needs to be interpreted in the context of observation made in the interpretation of the achievement data of the IX\textsuperscript{th} graders studying in three types of learning climate institutions, as well as the role of intelligence in the academic achievement.
Findings drawn in Table 2.0 reveals that learning climate of an institution is a significant factor in the determination of academic achievement of IX<sup>th</sup> graders. This observations needs to be examined in the context of the influence of intelligence on academic achievement. The research study conducted in this country and abroad on the relationship between intelligence and academic achievement reveals a median correlation of +0.55 between intelligence and academic achievement. This finding implies that by and large more an individual learner/student, the more his academic achievement on achievement tests administered on him. The reason for this dynamic relationship between intelligence and academic achievement needs to be sought in the context of intelligence. Although, psychologists studying the phenomenon of intelligence show no unanimity on the concept and theory of intelligence, they substantially agree that intelligence is the capacity to learn. The more intelligent an individual is, the more is the probability of his higher level or better academic achievement.

If this be so, academic achievement of the IX<sup>th</sup> graders on whom the present study was conducted is contingent upon their intelligence, which is, indeed, their capacity to learn. The highly intelligent IX<sup>th</sup> graders, in this context, have high capacity of learning, as such whatever the learning climate of an institution be, a high intelligent IX<sup>th</sup> grader, because of high capacity to learn, will make high academic achievement.
The implication of the above logical explanation is that high intelligent IX\textsuperscript{th} graders, irrespective of the difference in learning climate of their institution tend to make similar, of course, better academic achievement (\(\bar{x}_H=73.39, \bar{x}_A=67.76, \bar{x}_L=65.17\)). Acceptance of the above promise explains the reason for the observation of an insignificant F value in respect of academic achievement of IX\textsuperscript{th} graders of schools characterized by high learning climate, average learning climate and low learning climate.
OBJECTIVE : III

C- Institution’s learning climate wise academic achievement of average intelligent IX graders studying in secondary schools of Meerut.

Summary of the computations and statistical values (F & ‘t’) specified in Table 3 to 3.3 shows institution learning climate wise academic achievement of average intelligent IX\textsuperscript{th} graders studying in secondary schools of Meerut.

<table>
<thead>
<tr>
<th>Table no</th>
<th>Description of table</th>
<th>Computations and resultant value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Academic Achievement of avg. intelligent IX\textsuperscript{th} graders in High, Avg and Low learning climate</td>
<td>( \overline{X}_1 ) ( \overline{X}_2 ) ( \overline{X}_3 ) F ‘t’ ‘r’</td>
</tr>
<tr>
<td>3.1</td>
<td>Academic Achievement of avg. intelligent IX\textsuperscript{th} graders in High and Avg. learning climate</td>
<td>56.00 51.00 50 4.49 -</td>
</tr>
<tr>
<td>3.2</td>
<td>Academic Achievement of avg. intelligent IX\textsuperscript{th} graders in High and low learning climate</td>
<td>56.00 - 50.00 - 3.31** -</td>
</tr>
<tr>
<td>3.3</td>
<td>Academic Achievement of Avg. intelligent IX\textsuperscript{th} graders in avg. and low learning climate</td>
<td>- 51.00 50.00 - 0.57* -</td>
</tr>
</tbody>
</table>
Data processed in table 1.0, 1.1, 1.2 and 1.3 as well as table 2.0 after being processed through one way variance was further processed by applying the formula of ‘t’-test of significance, when F value was found to be insignificant with the exception of Table 2.0 where F-value was found to be insignificant. F-value was found to be significant in other tables. The observation in respect of the above mentioned Table suggests the following findings.

[1] Learning climate of an institution exerts significant results on academic achievement of the students studying in it.

[2] Intelligence of an individual learner, which is a hereditary factor, exerts a high significant value in influence on the academic achievement of the students studying in an educational institution.

[3] Relationship between high intelligence and academic achievement implies that by and large, the more an individual is intelligent, the more is his academic achievement on academic test.

[4] If one is interested in ascertaining the magnitude of relationship between learning climate and academic achievement factors influencing, other than learning climate,
need to be understood in respect of their role in academic achievement.

[5] The control of extraneous factor influencing academic achievement can be made by the following statistical techniques:-

(i) Subjecting the IX\textsuperscript{th} graders data on academic achievement, intelligence and learning climate to partial correlation.

(ii) Classifying the IX\textsuperscript{th} graders under three categories of intelligence, namely, high intelligence, average intelligence and low intelligence thereby controlling the influence of variations in the intelligence scores. Consequent to this intelligence of the learner ceases to be a significant factor in academic achievement.

This study helps in determining the influence of learning climate on academic achievement independent of the influence of intelligence, which as stated earlier is the capacity to learn. The researcher chose the II\textsuperscript{nd} statistical options. The reason for the choice of this option was its easiness in controlling the influence of intelligence. Besides, it delivers same result as delivered by the I\textsuperscript{st} statistical technique, namely, partial correlation.
For ascertaining the influence of leaning climate on the academic achievement of average intelligent IX\textsuperscript{th} graders who were studying in secondary institutions which differed in the quality of their learning climate i.e. (high quality, average quality and low quality), their academic achievement was subjected to one-way analysis of variance followed by ‘t’ test treatment, of course, if F value was found to be significant. As per table 3.0 average intelligent IX\textsuperscript{th} the graders studying in schools characterized by high, average and low learning climate significantly differed in their academic achievement (F = 4.49**).

This observation implies that average intelligent IX\textsuperscript{th} graders studying in high, average and low quality of learning climate differ significantly in their academic achievement. If this be so, it can be concluded that learning climate of an institution significantly influences the academic achievement of average intelligent students studying in it.

Table 3.1 presents the academic achievement of average intelligent IX\textsuperscript{th} graders studying in institutions characterized by two types of learning climate, namely, high quality of learning climate and average quality of learning climate. The academic achievement data of average intelligent IX\textsuperscript{th} graders of these two types of learning climate institutions: high and average learning climate when subjected to t-test of significance, shows a significant ‘t’ value (‘t’ = 2.92**). The
significance of ‘t’ value implies that:

1. Average intelligent IXth graders studying in secondary institution characterized by high and average learning climate institutions differ significantly in their academic achievement.

2. Average intelligent IXth graders studying in institutions characterized by high learning climate make better academic achievement (Mean $\bar{X}_H = 56.00$) in comparison to those average intelligent IXth graders who are studying in institutions characterized by average learning climate ($\bar{X}_{Avg}=51.00$).

Table [3.2] presents the data pertaining to the academic achievement of the average intelligent IXth graders studying in institutions characterized by high and low learning climate. The academic achievement of IXth graders studying in contrasting learning climate type of secondary institutions data when subjected to ‘t’ test of significance shows a significant difference in their academic achievement. This is borne out by the observation of significant ‘t’ value ($3.31^{**}$). On the basis of analysis of ‘t’ value, following findings emerge:-

1. Learning climate of an institution significantly influences academic achievement of the average intelligent IXth graders studying in it.
Institutions characterized by high quality of learning climate facilitate the academic achievement of their students \((\bar{X}_H=56.00)\) in comparison to those IX\(^{th}\) graders who are studying in schools which are characterized by low level of learning climate \((\bar{X}_L=50.00)\).

Table [3.3] presents the academic achievement of the average intelligent IX\(^{th}\) graders after being subjected to ‘t’ test of significance under average and low learning climate. No significant difference has been observed in the academic achievement of IX\(^{th}\) graders who are studying in these two types of schools characterized by average learning climate \((\bar{X}_A=51.00)\) and those who are studying in schools characterized by low learning climate \((\bar{X}_L=50)\). The reason for this finding needs to be sought from an observation of insignificant ‘t’ value \((0.57^*\) ) found out after processing the data. In the context of the above statistical values under table [3.0 to 3.3] following generalizations can be drawn:

1. Learning climate of an institution exerts an insignificant influence on the academic achievement of the students of average intelligence studying in it.
2. The better is the learning climate of an institution; the higher is the academic achievement of the students of average intelligence studying in it.
3. By and large, the academic achievement of average intelligent students of an institution is a function of its learning climate.
OBJECTIVE : IV

D- Institution’s learning climate wise academic achievement of low intelligent IX graders studying in secondary schools of Meerut

Summary of the computations and statistical values (F & ‘t’) specified in Table 2 to 2.3 shows institution learning climate wise academic achievement of low intelligent IX\textsuperscript{th} graders studying in secondary schools of Meerut.

<table>
<thead>
<tr>
<th>Table no</th>
<th>Description of table</th>
<th>Computations and resultant value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Academic Achievement of low intelligent IX\textsuperscript{th} graders in High, Avg and Low learning climate</td>
<td>(\overline{X}<em>{1(H)}) 33.00 (\overline{X}</em>{2(A)}) 31.00 (\overline{X}_{3(L)}) 28.00 (F) 7.06 ‘t’ - ‘r’ -</td>
</tr>
<tr>
<td>4.1</td>
<td>Academic Achievement of low intelligent IX\textsuperscript{th} graders in High and Avg. learning climate</td>
<td>33.00 31.00 - - 1.60* -</td>
</tr>
<tr>
<td>4.2</td>
<td>Academic Achievement of low intelligent IX\textsuperscript{th} graders in High and low learning climate</td>
<td>33.00 - 28.00 - 2.60**</td>
</tr>
<tr>
<td>4.3</td>
<td>Academic Achievement of low intelligent IX\textsuperscript{th} graders in Avg. and Low learning climate</td>
<td>- 31.00 28.00 - 1.65* -</td>
</tr>
</tbody>
</table>
Table 4.0, 4.1, 4.2 and 4.3 presents computations for ascertaining the F value (Table 4.0 and ‘t’ value indicating the significance of the academic intelligence of low academic achiever studying in schools characterized by high learning climate and average learning climate in table 4.1, ‘t’= 1.60*)

Table 4.2 showing computation of asserting significant difference between low intelligence IXth grader studying in high learning climate and those who are studying in opposite type of learning climate, namely, low learning climate in respect of their academic achievement (‘t’=3.60**).

The final table 4.3 shows the computation of academic achievement of low intelligent IXth graders studying in secondary institutions characterized by average learning climate and low learning climate. Needless to say, the F and ‘t’ values under table 4.0 to 4.3 are significant indications of the role of learning climate in influencing the academic achievement of the students studying in secondary institutions and attempt has been made in the succeeding to through light on the implications of the data contained in table 4.0 to 4.3.

For ascertaining the influence of leaning climate on the academic achievement of low intelligent IXth graders who were studying in secondary institutions which differed in the quality of their learning climate i.e. (high quality, average quality and low quality), their academic
achievement was subjected to one-way analysis of variance followed by ‘t’ test treatment, of course, if F value was found to be significant. As stated above according to table 4.0 low intelligent IX<sup>th</sup> the graders studying in schools characterized by high, average and low learning climate significantly differed in their academic achievement (F =7.06**).

This observation implies that low intelligent IX<sup>th</sup> graders studying in high, average and low quality of learning climate differ significantly in their academic achievement. If this be so, it can be concluded that learning climate of an institution significantly influences the academic achievement of low intelligent students studying in it.

Table 4.1 presents the academic achievement of average intelligent IX<sup>th</sup> graders studying in institutions characterized by high quality of learning climate and average quality of learning climate. The academic achievement data of low intelligent IX<sup>th</sup> graders of these two types of learning climate institutions: high and average learning climate when subjected to t-test of significance, shows a insignificant ‘t’ value (‘t’ = 1.60*). The significance of ‘t’ value implies that:

(1) Low intelligent IX<sup>th</sup> graders studying in secondary institutions characterized by high and average learning climate institutions differ insignificantly in their academic achievement.

(2) Low intelligent IX<sup>th</sup> graders studying in institutions characterized by high learning climate make better academic
achievement ($\bar{X}_{hl}=33.00$) in comparison to those Low intelligent IX\textsuperscript{th} graders who are studying in institutions characterized by average learning climate ($\bar{X}_{Avg}=31.00$).

Table [4.2] presents the data pertaining to the academic achievement of the low intelligent IX\textsuperscript{th} graders studying in institutions characterized by high and low learning climate. The academic achievement of low intelligent IX\textsuperscript{th} graders studying in contrasting learning climate type of secondary institutions IX\textsuperscript{th} graders academic achievement data when subjected to ‘t’ test of significance shows a significant difference in their academic achievement. This is borne out by the observation of significant ‘t’ value (2.60). On the basis of ‘t’ value interpreted above, the following findings emerge:-

(1) Learning climate of an institution significantly influences academic achievement of the low intelligent IX\textsuperscript{th} graders studying in it.

(2) Institutions characterized by high quality of learning climate facilitate the academic achievement of their students ($\bar{X}_{hl}=33.0$) in comparison to those IX graders who are studying in schools which are characterized by low level of learning climate ($\bar{X}_{l}=28.0$).

Table [4.3] presents the academic achievement of the low intelligent IX\textsuperscript{th} graders after being subjected to ‘t’ test of significance
under average and low learning climate. Significant difference has been observed in the academic achievement of low intelligent IX\textsuperscript{th} graders who are studying in these two types of schools characterized by average learning climate ($\bar{X}_A=31.0$) and those who are studying in schools characterized by low learning climate ($\bar{X}_L=28.0$). The reason for this finding needs to be sought from an observation of insignificant ‘t’ value (1.65') found out after processing the data.

In the context of the above statistical values under table [4.0 to 4.3] following generalizations emerge:

1. Learning climate of an institution exerts a significant influence on the academic achievement of the students of low intelligence studying in it.

2. The better is the learning climate of an institution; the higher is the academic achievement of the students of low intelligence studying in it.

3. By and large, the academic achievement of low intelligent student of an institution is a function of its learning climate.
OBJECTIVE : V

E- Institution’s learning climate wise academic achievement of high creative IXth graders studying in secondary schools of Meerut

Summary of the computations and statistical values (F & ‘t’) specified in Table 5.0 to 5.3 shows institution learning climate wise academic achievement of high creative IXth graders studying in secondary schools of Meerut

<table>
<thead>
<tr>
<th>Table no</th>
<th>Description of table</th>
<th>Computations and resultant value</th>
</tr>
</thead>
</table>
| 5        | Academic Achievement of high creative IX graders in High, Avg & Low learning climate | $\bar{x}_{1(H)} = 75.15$  
$\bar{x}_{2(A)} = 72.24$  
$\bar{x}_{3(L)} = 68.42$  
$F = 6.39$  
‘t’ = -  
‘r’ = - |
| 5.1      | Academic Achievement of high creative IX graders in High and Avg. learning climate | $\bar{x}_{1(H)} = 75.14$  
$\bar{x}_{2(A)} = 72.24$  
$\bar{x}_{3(L)} = -$  
$F = -$  
‘t’ = 1.50*  
‘r’ = - |
| 5.2      | Academic Achievement of high creative IX graders in High and low learning climate | $\bar{x}_{1(H)} = 75.14$  
$\bar{x}_{2(A)} = 68.42$  
$\bar{x}_{3(L)} = -$  
$F = -$  
‘t’ = 3.40**  
‘r’ = - |
| 5.3      | Academic Achievement of high creative IX graders in Avg. and low learning climate | $\bar{x}_{1(H)} = -$  
$\bar{x}_{2(A)} = 72.24$  
$\bar{x}_{3(L)} = 68.42$  
$F = -$  
‘t’ = 1.79*  
‘r’ = - |
Phenomenon of academic achievement has been a fascinating subject for research for more than half a century. This phenomenon has been continuously studied in the context of learner’s and teacher’s characteristics, their home environment, social and community conditions in which they live, institutional management and Principal’s administrative style and teacher’s competence.

Besides, their academic achievement influencing factor, the present study has sought to probe the phenomenon of academic achievement in the context of learning climate of an educational institution. It will not be out of place to mention here that as per findings drawn in earlier studies show creativity of an individual learner also plays a significant role in influencing the academic achievement of the learners. Since, the present study aimed at ascertaining the influence of institutional learning climate on academic achievement, therefore, it was thought necessary to control the influence of creativity on academic achievement. This objective was achieved by controlling the academic achievement of IXth graders under high, average and low learning climate at a specific level of creativity, high, average and low.

Table 5.0 reveals that high creative IXth graders studying in institutions differing in their learning climate, differ significantly in respect of their academic achievement (F-6.39**). The above observation
suggests that learning climate of an institution plays a vital role in the determination of academic achievement of highly creative IXth graders.

In what way learning climate of an educational institution influences the academic achievement of highly creative learner is a question which needs to be understood in context of basic constituents of learning climate.

Learning climate is an aspect of educational institute’s total environment. It is a characteristic that gives a unique quality to the environment. Every institute develops its own culture and climate with its own taboos, folkways and mores. This climate refers both the norms and the values of the formal system and their reinterpretation in the formal system. Learning climate of an organization reflects the history of the internal and external struggles, the types of people the institute attracts, physical layout, the modes of communication and the exercise of authority within the system. Just a society has a cultural heritage so does a social organization possess distinctive patterns of collective feeling and beliefs. Institutional climate refers to the feeling which exists in a given institute and the feelings vary from school to school.

It is claimed that, depending on their preferred learning modality, different teaching techniques have different levels of effectiveness. A consequence of this theory is that effective teaching should present a variety of teaching methods which cover all three learning modalities so
that different students have equal opportunities to learn in a way that is
effective for them. Guy Claxton has questioned the extent that learning
styles such as VAK are helpful, particularly as they can have a tendency
to label children and, therefore, restrict learning.

In addition to rethinking their formal learning spaces (classrooms,
computer laboratory etc.) today’s progressive campuses are finding ways
to add value to informal learning spaces (courtyards, coffee shops, etc)
and incorporate virtual learning spaces (online classrooms, podcasts, etc)
to provide their students with a rich, integrated learning environment that
supports different types of learning.

To be specific, learning climate of an educational institution is the
product of relationship between Principal and his staff on the one hand
and among the teachers on the other hand and the relationship that exists
between teachers and learners of an institution. An institution
characterized by high learning climate embraces within it the
characteristics of an open learning climate. An open learning climate
presents an energetic and lively intra and interpersonal relationship
between teacher and learners and among the learners in teaching learning
situations. The members of the classroom group move toward its goals
achievement of the goals provide satisfaction to the learners. The
members are preoccupied neither with task achievement nor with social
need satisfaction. Satisfaction on both counts seems to be obtained easily
and almost effortlessly. The main character of this climate is the authenticity of behavior that occurs among all members. The more open is the learning climate, the more conducive it is for learning by students. Such a climate is usually referred to as high learning climate- Opposite to it, is the climate which is closed. Such a climate is less conducive for learning by the students. Hence this climate is referred to as low learning climate. Climate which occupies a middle position between these two extremes of learning climate is considered as average learning climate.

The table 5.0 reveals the following observation:-

(i) The creative IXth graders studying in secondary institutions characterized by three levels of hierarchical order learning climate.

(ii) The high creative IXth graders studying in secondary institutions characterized by High, average and low learning climate differ significantly in respect of their academic achievements in table 5.0 (F=6.39**) .

(iii) Creativity is a construct which symbolizes originality, flexibility, fluency and elaboration it is a helpful mental ability in solving unfamiliar and noble problems. This shows that academic achievement of the highly creative students is better in different types of learning climate. In fact there is more interaction between creative ability of IXth graders and
the learning climate of an institution in which they study. This results in raising the academic output of the learners. The statistical values containing table 5.0 need to be understood in the context of this dynamics between creativity and learning climate.

Creative group contiguous in respect of their creativity have been found not to differ significantly on their academic achievement. This observation is based on the insignificant difference in academic achievement of high and average IX\textsuperscript{th} graders creative students (Table 5.1, ‘t’=1.50* ). There is an insignificant difference in the academic achievement of these two comparison groups. The two comparison group of IX\textsuperscript{th} grader creative students indicate that institutions which are almost similar in their learning climate do not differ on academic achievement.

However, high creative students studying in extreme level of learning climate, i.e. high and low learning climate differ significantly on their academic achievement. Table 5.20, ‘t’ =3.40**) also bring to light the fact that highly creative student studying in secondary institutions characterized by high and low learning climate strikingly differ in their academic achievement.

The above observation shows that highly creative students make much higher academic achievement (Mean $\bar{X}_H = 75.14$ ), in comparison to those highly creative students who are studying in secondary
institutions characterized by low learning climate (mean, $X_L = 68.42$).

The mean academic achievement value and ‘t’-value contained in table 5.3 shows the same observation which was made while interpreting the value interpreted in table 5.1. As such the earlier interpretation also apply on the ‘t’-value of this table. The reason is obvious. The high creative IX$^{th}$ graders studying in secondary institution of average learning climate and those studying in secondary institution characterized by low learning climate do not differ significantly (‘t’= 1.79*) in respect of their mean academic achievement (Mean $\bar{X}_{Avg} = 72.24$ and $\bar{X}_L = 68.42$). The reason for insignificance of difference on academic achievement between the highly creative IX$^{th}$ graders of institution characterized by average and low learning climate seem to be similar as have been given values obtained in table 5.1.
OBJECTIVE : VI

F - Institution’s learning climate wise academic achievement of average creative IXth graders studying in secondary schools of Meerut

Summary of the computations and statistical values (F & ‘t’) specified in Table 6 to 6.3 shows institution learning climate wise academic achievement of average creative IXth graders studying in secondary schools of Meerut

<table>
<thead>
<tr>
<th>Table no</th>
<th>Description of table</th>
<th>Computations and resultant value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Academic Achievement of Avg. creative IXth graders in High, Avg and Low learning climate</td>
<td>$\bar{x}_{1(H)}$</td>
</tr>
<tr>
<td>6.1</td>
<td>Academic Achievement of Avg. creative IXth graders in High and Avg. learning climate</td>
<td>72.32</td>
</tr>
<tr>
<td>6.2</td>
<td>Academic Achievement of Avg. creative IXth graders in High and low learning climate</td>
<td>72.32</td>
</tr>
<tr>
<td>6.3</td>
<td>Academic Achievement of Avg. creative IXth graders in Avg. and low learning climate</td>
<td>-</td>
</tr>
</tbody>
</table>
For ascertaining the influence of leaning climate on the academic achievement of average creative IX\textsuperscript{th} graders who were studying in secondary institutions which differed in the quality of their learning climate i.e. (high quality, average quality and low quality), their academic achievement was subjected to one-way analysis of variance followed by ‘t’ test treatment, of course, if F value was found to be significant. As per table 6.0 average intelligent IX\textsuperscript{th} graders studying in schools characterized by high, average and low learning climate significantly differ in their academic achievement (F =12.24**).

This statistical observation implies that IX\textsuperscript{th} graders of average creativity studying in high, average and low quality of learning climate differ significantly in their academic achievement. In view of the foregoing, it can be concluded that learning climate of an institution significantly influences the academic achievement of average creative students also who are studying in it.

Table 6.1 shows the academic achievement of average creative IX\textsuperscript{th} graders studying in institutions characterized by two types of learning climate, namely, high quality of learning climate and average quality of learning climate. The academic achievement data of average creative IX\textsuperscript{th} graders of these two types of learning climate institutions: high and average learning climate when subjected to t-test of significance, shows a insignificant ‘t’ value (‘t’ = 1.92*). The
significance of ‘t’ value implies that:

1. Average creative IXth graders studying in secondary institution characterized by high and average learning climate institutions differ insignificantly in their academic achievement.

2. Average creative IXth graders studying in institutions characterized by high learning climate make better academic achievement ($\bar{X}_H = 72.32$) in comparison to those average creative IXth graders who are studying in institutions characterized by average learning climate ($\bar{X}_{Avg} = 68.18$).

Table [6.2] presents the data pertaining to the academic achievement of the average creative IXth graders studying in institutions characterized by high and low learning climate. The academic achievement of IXth graders studying in contrasting learning climate type of secondary institutions data when subjected to ‘t’ test of significance shows a significant difference in their academic achievement. This is borne out by the observation of significant ‘t’ value ($5.14^{**}$). On the basis of analysis of ‘t’ value, following findings emerge:

1. Learning climate of an institution significantly influences academic achievement of the average creative IXth graders studying in it.

2. Institutions characterized by high quality of learning climate facilitate the academic achievement of their students.
(\(\bar{X}_H=72.32\)) in comparison to those IX graders who are studying in schools which are characterized by low level of learning climate (\(\bar{X}_L=62.42\)).

Table [6.3] presents the academic achievement of the average creative IX\(^{th}\) graders after being subjected to ‘t’ test of significance under average and low learning climate. Significant difference has been observed in the academic achievement of IX\(^{th}\) graders who are studying in these two types of schools characterized by average learning climate (\(\bar{X}_A=68.18\)) and those who are studying in schools characterized by low learning climate (\(\bar{X}_L=61.42\)). The reason for this finding needs to be sought from an observation of significant ‘t’ value (3.36**) found out after processing the data. In the context of the above statistical values under table [6.0 to 6.3] following generalizations can be drawn:

(1) Learning climate of an institution exerts a significant influence on the academic achievement of the students of average creative studying in it.

(2) The better is the learning climate of an institution; the higher is the academic achievement of the students of average creative studying in it.

(3) By and large, the academic achievement of average creative students of an institution is a function of its learning climate.
OBJECTIVE : VII

G - Institution’s learning climate wise academic achievement of low creative IXth graders studying in secondary schools of Meerut

Summary of the computations and statistical values (F & ‘t’) specified in Table 2 to 2.3 shows institution learning climate wise academic achievement of low creative IXth graders studying in secondary schools of Meerut

<table>
<thead>
<tr>
<th>Table no</th>
<th>Description of table</th>
<th>Computations and resultant value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Academic Achievement of low creative IXth graders in High, Avg and Low learning climate</td>
<td>$\bar{X}<em>{1(H)}$ 68.62, $\bar{X}</em>{2(A)}$ 67.24, $\bar{X}_{3(L)}$ 60.42, F 4.83**, ‘t’ - , ‘r’ -</td>
</tr>
<tr>
<td>7.1</td>
<td>Academic Achievement of low creative IXth graders in High and Avg. learning climate</td>
<td>$\bar{X}<em>{1(H)}$ 68.62, $\bar{X}</em>{2(A)}$ 67.24, F - , ‘t’ 4.16**</td>
</tr>
<tr>
<td>7.2</td>
<td>Academic Achievement of low creative IXth graders in High and low learning climate</td>
<td>$\bar{X}<em>{1(H)}$ 68.62, $\bar{X}</em>{3(L)}$ 60.42, F - , ‘t’ 4.16**</td>
</tr>
<tr>
<td>7.3</td>
<td>Academic Achievement of low creative IXth graders in Avg. and low learning climate</td>
<td>F - , ‘t’ 3.19**, ‘r’ -</td>
</tr>
</tbody>
</table>
Table 7.0 reveals an significant F value ( F-4.83**) after subjecting academic achievement data of IXth graders studying in three types of secondary institutions characterized by high learning climate, namely, average learning climate and low learning climate. This finding needs to be interpreted in the context of observation made in the interpretation of the achievement data of the IXth graders studying in three types of learning climate institutions, as well as the role of creativity in the academic achievement.

Finding drawn in Table 7.0 reveals that learning climate of an institution is a significant factor in the determination of academic achievement of IXth graders. This observations needs to be examined in the context of the influence of low creativity on academic achievement.

If this be so, academic achievement of the IXth graders on whom the present study was conducted is contingent upon their creativity, which is, indeed, their capacity to learn. The low creativity IXth graders, in this context, have high capacity of learning. As such whatever be the learning climate of an institution, a low creativity IXth grader, because of high capacity to learn, will make high academic achievement. The implication of the above logical explanation is that low creative IXth graders, irrespective of the difference in learning climate of their institution tend to make similar, of course, better academic achievement.
(\(\bar{x}_{\text{high}}=68.62\), \(\bar{x}_{\text{Avg}}=67.24\), \(\bar{x}_{\text{Low}}=60.42\)). Acceptance of the above premise explains the reason for the observation of a significant F value in respect of academic achievement of IX\(^{th}\) graders of schools characterized by high learning climate, average learning climate and low learning climate.
OBJECTIVE : VIII

H- Magnitude of relationship of relationship between learning climate of any institution and academic achievement of its students

Table : 8

<table>
<thead>
<tr>
<th>Student no</th>
<th>X</th>
<th>Y</th>
<th>x</th>
<th>y</th>
<th>X^2</th>
<th>Y^2</th>
<th>xy</th>
<th>r</th>
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<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>76</td>
<td>0.39</td>
<td>13.04</td>
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<td>170.94</td>
<td>5.09</td>
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<tr>
<td>100</td>
<td>3</td>
<td>53</td>
<td>1.51</td>
<td>-9.96</td>
<td>2.59</td>
<td>99.20</td>
<td>16.4</td>
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<tr>
<td>Σ</td>
<td>462</td>
<td>6296</td>
<td></td>
<td></td>
<td>188.57</td>
<td>203.84</td>
<td>1060.48</td>
<td>+0.55</td>
</tr>
</tbody>
</table>

Correlation determination formula

\[ r = \frac{\sum x'y'}{\sqrt{\sigma \sum (x')^2 \cdot \sigma \sum (y')^2 \cdot N}} = +0.55 \]

r = +0.55

Table No. | Description of table                                                                 | Computations and resultant value |
----------|-------------------------------------------------------------------------------------|---------------------------------|
8         | Relationship between learning climate of an institution & academic achievement of its students | X1 (H) X2 (A) X3 (L) F ‘t’ ‘r’ |
          |                                                                                      | - - - - - + 0.55                |
Table 8.0 reveals that the correlation between learning climate of an institution and academic achievement of an institution is +0.55. Statistically speaking, this is not only a significant correlation but also marginally more than, average degree. If this is so, it can be concluded that by and large, the better is the learning climate of an institute, the higher is the level of academic achievement of the students studying in it. This observation implies that learning climate of an institution is a very important factor in raising the academic attainment of the students studying in it. The teacher, therefore, besides enhancing the quality of learning, must design effective learning climate. More the teacher succeeds in designing and developing open and democratic learning climate, the learning output of the students will be significantly higher. The higher the magnitude of learning, the higher will be the academic achievement of the students studying in it.