Chapter IV

Analysis & Interpretation...
CHAPTER - IV
ANALYSIS & INTERPRETATION

In the preceding chapters, emergence of the problem, development of the tools and method of the study were discussed. The present chapter is devoted to the statistical treatment of the data and interpretation of the results.

The results have been discussed in three different parts i.e., PART-A; PART-B and PART-C.

PART-A deals with the analyses related to the 'Home Factors Associated with Parental Involvement, Cognitive Skills and Social Skills'.

PART-B deals with the analyses related to 'School Intervention' and

PART-C deals with analyses of Impact of the Parental Involvement and School Intervention (Democratic/Participative and Authoritarian/Non-Participative Class Climate) on Cognitive & Social Skills.

PART-A
This part of the chapter covers the following analyses.

A : Association of Home Factors with Parental Involvement, Cognitive Skills and Social Skills
A.1 : Association of Home Factors and Parental Involvement
A.1.1 : Association of Qualifications of Father with Parental Involvement.
A.1.2 : Association of Qualifications of Mother with Parental Involvement.
A.1.3 : Association of Type of Family with Parental Involvement.
A.1.4 : Association of Economic Status of Families with Parental Involvement.
A.1.5 : Association of Working Status of Mothers with Parental Involvement.
A.1.6 : Association of Occupation of Fathers with Parental Involvement.

A.2 : Home Factors and their Association with Cognitive Skills
A.2.1 : Association of Qualifications of Father with Cognitive Skills.
A.2.2 : Association of Qualifications of Mother with Cognitive Skills.
A.2.3 : Association of Type of Family with Cognitive Skills.
A.2.4 : Association of Economic Status of Families with Cognitive Skills.
A.2.5 : Association of Working Status of Mothers with Cognitive Skills.
A.3  :  Home Factors and their Association with Social Skills
A.3.1 :  Association of Qualifications of Father with Social Skills.
A.3.2 :  Association of Qualifications of Mother with Social Skills.
A.3.3 :  Association of Type of Family with Social Skills.
A.3.4 :  Association of Economic Status of Families with Social Skills.
A.3.5 :  Association of Working Status of Mothers with Social Skills.
A.3.6 :  Association of Occupation of Fathers with Social Skills.

A.4  :  Analyses Related with Parental Involvement and Cognitive Skills
A.4.4 :  Analysis of Parental Involvement and Individual Cognitive Skills in English.
A.4.6 :  Analysis of Parental Involvement and Individual Cognitive Skills in Environmental Studies.

PART – B
Part-B focuses around school intervention. School Intervention was studied and Class-Climates were derived and analysed. This part therefore focuses around following analyses related with school intervention:
B.1 :  Analysing Classroom Interactions Subject-wise.
B.2 :  Analysing Classroom Interactions Grade-wise.
B.3 :  Identifying Democratic/Participative and Authoritarian/Non-Participative Class Climates based on Classroom Interactions.

PART – C
Part-C contains analyses related with Impact of Parental Involvement and Class Climate on Cognitive Skills and Social Skills of Primary School Children. This part of the report has been split into two components.
Part-C.1: Presents the analyses of Cognitive Skills in relation to Parental Involvement and School Intervention (Democratic/Participative and Authoritarian/Non-Participative Class Climate).

C.1.1 : ANOVA on the Scores of Cognitive Skills in English (Global Scores).
C.1.2 : ANOVA on the Scores of Cognitive Skills in Mathematics (Global Scores).
C.1.3 : ANOVA on the Scores of Cognitive Skills in Environmental Studies (Global Scores).

Part-C.2: Contains the analyses of Individual Cognitive Skills in relation to Parental Involvement and School Intervention (Democratic/Participative and Authoritarian/Non-Participative Class Climate).

C.2.1 : ANOVA on Score of Individual Cognitive Skills in English.
C.2.2 : ANOVA on Score of Individual Cognitive Skills in Mathematics.
C.2.3 : ANOVA on Score of Individual Cognitive Skills in Environmental Studies.

Part-C.3: Contains the analyses of Individual Social Skills in relation to Parental Involvement and Class Climate.

C.3.1 : ANOVA for Social Skills (Global) in Relation to Parental Involvement and Class Climate
C.3.2 : ANOVA for Scores of Social Skills (Twelve Individual Social Skills Separately).

PART-D

Part-D Presents the Discussion of the Results
PART-A
HOME FACTORS & PARENTAL INVOLVEMENT

A.1: Association of Home Factors with Parental Involvement

The parental involvement was measured through the Parent-Child Involvement Scale. After the scoring of the tool, the scores were arranged in ascending order of magnitude from the lowest to highest and then through statistical treatment of 1st and 3rd quartiles (Q1 and Q3) children of high involved parents and the children of low involved parents were identified. The scores of these children were subjected to the following analyses:

A.1.1/2 : Association of Parental Involvement and Educational Qualifications of Parents

This analysis was done to test the following null hypotheses.

Ho.1: There is no Association of Educational Qualifications of Father with Parental Involvement.

Ho.2: There is no Association of Educational Qualifications of Mother with Parental Involvement.

The association of parental involvement and educational qualification of parents was studied by classifying parents' sample into three groups, viz.:

(i) Parents who were completely illiterate and who did not get any formal education.

(ii) The second group consisted of parents who received education up to secondary level.

(iii) And the third group consisted of those parents who possessed higher and professional qualifications.

The scores of Parental Involvement were arranged in ascending order and, Q1 and Q3 were computed. Parents whose score was below Q1 were categorised as low Parental Involvement group and those falling above Q3 were categorised as high Parental Involvement group.

The data were distributed in a 2 x 3 contingency table for computing Chi-square ($\chi^2$). The table cells depict the frequencies of the parents falling in each cell. The distribution of frequencies along with $\chi^2$ values have been given in following table nos. 4.1 and 4.2 respectively.
Table No. 4.1
Association of Qualifications of Fathers with Parental Involvement

<table>
<thead>
<tr>
<th>P. Involvement Level</th>
<th>Illiterate Secondary Education</th>
<th>Higher Education</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIP</td>
<td>0</td>
<td>19</td>
<td>50</td>
</tr>
<tr>
<td>LIP</td>
<td>7</td>
<td>32</td>
<td>20</td>
</tr>
</tbody>
</table>

$HIP = High\ Involved\ Parents.$

$LIP = Low\ Involved\ Parents.$

$\chi^2 (2.1) (0.05) = 5.99^*$

$\chi^2 (0.01) = 9.21^{**}$

It may be observed from the table no. 4.1, that the estimated Chi-square ($\chi^2$) value of 22.85, exceeds the theoretical value with degree of freedom (df=2) at the 0.01 level of confidence. It indicates that the data did not provide an evidence to support the hypothesis. Hence, the null hypothesis (Ho.1) was rejected at the specified level of confidence. It indicates that the fathers' qualification was highly associated with parental involvement.

A similar analysis was done for qualifications of mothers. Frequencies in cells of contingency table 2 x 3 have been given in table no. 4.2, along with their $\chi^2$ value.

Table No. 4.2
Association of Qualifications of Mothers with Parental Involvement

<table>
<thead>
<tr>
<th>P. Involvement Level</th>
<th>Illiterate Secondary Education</th>
<th>Higher Education</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIP</td>
<td>1</td>
<td>37</td>
<td>31</td>
</tr>
<tr>
<td>LIP</td>
<td>8</td>
<td>36</td>
<td>15</td>
</tr>
</tbody>
</table>

$\chi^2 (2.1) (0.05) = 5.99^*$

$\chi^2 (0.01) = 9.21^{**}$

It may be observed from the table no. 4.2, that the estimated Chi-square ($\chi^2$) value of 10.29, exceeds the theoretical value with degree of freedom (df=2) at the 0.01 level of confidence. It indicates that the data did not provide an evidence to support the hypothesis. Hence, the null hypothesis (Ho.2) was rejected at the specified level of confidence leading to an inference, that the qualifications of mothers were associated with the parental involvement with their children.
A.1.3 Association of Type of Family with Parental Involvement

Association of type of family and parental involvement was analysed through $\chi^2$. This analysis was done to test the following null hypothesis.

Ho.3: Parental Involvement is not Associated with the Type of Family.

The types of families studied were: (i) Nuclear Family and (i) Joint Family. Those families in which only parents lived with children; their cousins or grand parents etc. were not living with these children; such families were taken as nuclear families and those families which were running as joint ventures and children were living with cousins/grand parents under the same roof were taken as joint families.

Frequencies for parents who reported to be living in nuclear families and joint families were calculated for highly involved parents and less involved parents.

A 2 x 2 contingency table was drawn. Frequencies corresponding to each cell have been depicted in table no. 4.3, and $\chi^2$ value has also been presented alongwith.

<table>
<thead>
<tr>
<th>P. Involvement Level</th>
<th>Nuclear Family</th>
<th>Joint Family</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIP</td>
<td>62</td>
<td>07</td>
<td>6.2*</td>
</tr>
<tr>
<td>LIP</td>
<td>43</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (1, 0.05) = 3.84^*$

The above table no. 4.3, reveals that the calculated $\chi^2$ value of 6.2, exceeds the theoretical values at the 0.05 level of confidence. It indicates that the data did not provide an evidence to support the hypothesis at the specified level. Hence, the null hypothesis (Ho.3) was rejected at the specified level of confidence, leading to an inference, that the type of family was marginally associated with the parental involvement.

A.1.4: Association of Economic Status of the Families with Parental Involvement

This analysis was done to test the following null hypothesis.

Ho.4: There is no Association of Economic Status of Families with Parental Involvement.

The economic status of the family was determined on the basis of global score of family income. Families were classified into three categories on the basis of economic status viz: (i) High Income, (ii) Moderate Income, & (iii) Low Income.
Families, where both parents were in job or having a good business, were categorised as high income families. Those families in which parents had an income through some clerical job etc. were classified as moderate income families. Those families where single salary of one family member was the only source of income and this single salary too was drawn through a fourth class employment or small profession, were treated as low income families.

The frequencies of children belonging to highly involved parents and low involved parents were classified according to three categories of economic status. A $\chi^2$ test was applied to analyse the data classified onto a 2 x 3 contingency table no. 4.4.

<table>
<thead>
<tr>
<th>P. Involvement Level</th>
<th>High Income</th>
<th>Moderate Income</th>
<th>Low Income</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIP</td>
<td>25</td>
<td>37</td>
<td>07</td>
<td>12.90**</td>
</tr>
<tr>
<td>LIP</td>
<td>10</td>
<td>31</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

It may be observed from table no. 4.4, that the estimated Chi-square ($\chi^2$) value of 12.90 exceeds the theoretical value at the 0.01 level of confidence. It shows that the data did not provide an evidence to support the hypothesis. Hence, the null hypothesis (Ho.4) was rejected at the specified level of confidence, leading to an inference that the economic status of the family was associated with the parental involvement.

A.1.5/6: Association of Occupational Status of Parents with Parental Involvement

The analysis was done to test the following well hypothesis.

Ho.5: There is no Correspondence between Working Status of Mothers with Parental Involvement.

Ho.6: There is no Association of Occupation of Fathers with Parental Involvement.

Separate analyses were done to study the association of parents professional status with parental involvement. Since, most of the mothers in the present study were housewives and non-working, hence only two categories were made regarding working status of mothers viz: working and non-working and children belonging to high involved parents and less involved parents were classified into these two categories as presented in the following table no. 4.5.

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Table No. 4.5

Association of Working Status of Mothers with Parental Involvement

<table>
<thead>
<tr>
<th>P. Involvement Level</th>
<th>Working</th>
<th>Non-Working</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIP</td>
<td>20</td>
<td>49</td>
<td>1.27</td>
</tr>
<tr>
<td>LIP</td>
<td>12</td>
<td>47</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (1, 0.05) = 3.84^*$

It may be observed from the table no. 4.5, that the estimated value of $\chi^2 = 1.27$, did not exceed the theoretical value of 3.84 even at the 0.05 level of confidence. Thus, the estimated value was not found to be significant even at the 0.05 level of confidence. It suggests that the null hypothesis (Ho.5) was not rejected at the specified level of confidence. It may be inferred that the working status of mother was not found associated with the parental involvement. Working or non-working mothers exhibited equal levels of parental involvement.

As far as working status of father is concerned, it was not working/non-working status but type of occupation a father was holding, which was studied. Father’s occupation was classified into four categories viz: Businessman, Lower grade jobs (technicians, mechanics, peons, etc.) General officer cadre jobs and Executive jobs. The data corresponding to frequencies in cells of 2 x 4 contingency table and their $\chi^2$ value have been presented in the table no. 4.6 below.

Table No. 4.6

Association of Types of Occupations of Fathers with Parental Involvement

<table>
<thead>
<tr>
<th>P. Involvement Level</th>
<th>Lower Grade Job</th>
<th>Business</th>
<th>General Officer Cadre</th>
<th>Executive</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIP</td>
<td>14</td>
<td>12</td>
<td>25</td>
<td>18</td>
<td>8.92*</td>
</tr>
<tr>
<td>LIP</td>
<td>24</td>
<td>06</td>
<td>22</td>
<td>07</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (3, 0.05) = 7.81^*$

$\chi^2 (3, 0.01) = 11.34^{**}$

It may be observed from the above table no. 4.6, that the estimated value of $\chi^2$ was 8.92. It was found to be significant at the 0.05 level of confidence. It indicates that the data did not provide an evidence to support the hypothesis. Hence, the null hypothesis (Ho.6) was rejected at the specified level of confidence leading to an inference that the occupations of fathers were marginally associated with the parental involvement.
Summary Profile: Association of Parental Involvement with certain Home Factors can be summarised as:

- Fathers' qualifications were highly associated with parental involvement.
- Mothers' qualifications were also found to be highly associated with parental involvement.
- There was a correspondence between economic status of families with parental involvement.
- There was a correspondence between type of family (Nuclear/Joint) and parental involvement.
- Parental involvement does not seem to be associated with working status of mothers.
- Father's occupational level has been found to be marginally associated with parental involvement.

After having studied some of the factors related with home (viz. qualifications, working status, economic status and types of families) and their association with parental involvement, similar analyses were done to study whether cognitive skills were also associated with these home factors or not.

A.2: Association of Home Factors and Cognitive Skills

The cognitive skills of children of grades-I, II & III, were measured through the 'Competence Test Battery', which was covering cognitive skills related to three subjects viz: Language (English), Mathematics, and Environmental Studies (Social Studies & Science). As discussed in Chapter-II of the report, separate test battery for grades-I, II & III were prepared and validated by the investigator. The aggregate scores corresponding to all cognitive skills were arranged subject-wise and data was subjected to analysis. On the basis of $Q_1$ and $Q_3$ on global cognitive skills scores, high (upper 25%) and low (bottom 25%) skills children were identified for each grades-I, II & III, separately.

The frequencies of high and low skills children corresponding to each one of the Home Factor under investigation, were calculated separately and their associations were studied through $\chi^2$ test.


Association of parent's qualifications with cognitive skills of children was studied separately for mother's and father's qualifications.

Three groups of fathers and mothers qualifications were drawn with regard to qualifications; Illiterates, Secondary school educated and those having higher professional qualifications. This analysis was done to test the following null hypotheses:
Ho.7: There is no Association between Educational Qualifications of Father and Cognitive Skills of Children.

Ho.8: There is no Association between Educational Qualifications of Mother and Cognitive Skills of Children.

The data was distributed in a 2 x 3 contingency table for computing $\chi^2$ for high and low cognitive skills children of grades-I, II & III pooled together. The distribution of frequencies alongwith $\chi^2$ value have been presented in the following table no. 4.7 and 4.8.

Table No. 4.7

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Illiterate</th>
<th>Secondary Education</th>
<th>Higher Education</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS</td>
<td>0</td>
<td>20</td>
<td>39</td>
<td>4.41</td>
</tr>
<tr>
<td>LCS</td>
<td>1</td>
<td>28</td>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>

HCS = High on Cognitive Skills
LCS = Low on Cognitive Skills

$\chi^2 (0.05) = 5.99^*$
$\chi^2 (0.01) = 9.21^{**}$

It may be observed from the above table no. 4.7, that the estimated value of 4.41, does not exceed the theoretical value 5.99 even at the 0.05 level of confidence. The estimated value was not significant even at the 0.05 level of confidence. It suggests that the null hypothesis (Ho.7) could not be rejected at the specified level of confidence. It may therefore be inferred that the qualifications of fathers were not found to be associated with the cognitive skills of their children.

A similar analysis was done for qualifications of mothers. Frequencies in cells of contingency table 2 x 3 have been given in table no. 4.8 alongwith their $\chi^2$ value.

Table No. 4.8

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Illiterate</th>
<th>Secondary Education</th>
<th>Higher Education</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS</td>
<td>0</td>
<td>32</td>
<td>27</td>
<td>5.33</td>
</tr>
<tr>
<td>LCS</td>
<td>4</td>
<td>33</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (0.05) = 5.99^*$
$\chi^2 (0.01) = 9.21^{**}$

It may be seen from the above table no. 4.8, that the estimated value of 5.33, does not exceed the theoretical value of 5.99 even at the 0.05 level of confidence. Thus, the estimated value was not significant even at the 0.05 level of confidence. It indicates that the null hypothesis (Ho.8) does not stand rejected at the specified level of confidence. It may be
concluded that the qualifications of mothers were not found to be associated with the cognitive skills of the children of grades-I, II & III.

A.2.3: Association of Type of Family with Cognitive Skills of Children.

Association of type of family and cognitive skills was analysed through $\chi^2$. This analysis was done to test the following null hypothesis:

$H_0.9$: Type of Family (Nuclear/Joint) is not Associated with Cognitive Skills of Children

The types of families were studied as: (i) Nuclear family & (ii) Joint Family. Nuclear and Joint families were identified exactly on the same pattern as for studying association of type of Family with Parental Involvement.

A 2x2 contingency table was drawn and frequencies corresponding to each cell have been depicted in table no. 4.9, and $\chi^2$ value has also been presented alongwith.

Table No. 4.9

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Nuclear Family</th>
<th>Joint Family</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS</td>
<td>54</td>
<td>05</td>
<td>3.81</td>
</tr>
<tr>
<td>LCS</td>
<td>44</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2_{(1,9)} (0.05) = 3.84^*$  
$(0.01) = 6.63^{**}$

The above table no. 4.9, presents the estimated $\chi^2$ value of 3.81 for degree of freedom (df=1). It does not exceed the theoretical value of 3.84 even at the 0.05 level of confidence. It indicates that the null hypothesis ($H_0.9$) could not be rejected at the specified level of confidence, leading to an inference that the type of family was not found to be associated with the cognitive skills of the children of grades-I, II & III.

A.2.4: Association of Economic Status of the Families with Cognitive Skills of Children

This analysis was done to test the following null hypothesis.

$H_0.10$: There is no Correspondence between Economic Status of Families and Cognitive Skills of Children.

For this analysis high and low skills children were categorised into three groups on the basis of economic status of the family. The economic status of the parents was specified as high, moderate and low-income parents. To test the association of economic status of family and cognitive skills of children, $\chi^2$ test was employed. The cells in the 2x3 contingency table depict the frequencies of children belonging to each category and have been recorded in the table no. 4.10.
Table No. 4.10
Association of Economic Status of the Families with Cognitive Skills of Children

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>High Income</th>
<th>Moderate Income</th>
<th>Low Income</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS</td>
<td>25</td>
<td>30</td>
<td>04</td>
<td>8.7*</td>
</tr>
<tr>
<td>LCS</td>
<td>16</td>
<td>25</td>
<td>15</td>
<td>8.7*</td>
</tr>
</tbody>
</table>

$\chi^2 (\alpha, 0.05) = 5.99^*$

It may be observed from the above table no. 4.10, that the estimated $\chi^2$ value of 8.7, exceeds the theoretical value with degree of freedom (df=2) at the 0.05 level of confidence. It indicates that the data provided sufficient evidence to reject the hypothesis. Hence, the null hypothesis (Ho.10) was rejected at the specified level of confidence, leading to an inference that the economic status of the family was associated with the cognitive skills of the grades-I, II & III children.

A.2.5/6: Association of Occupational Status of Parents with Cognitive Skills of Children

The analysis was done to test the following null hypotheses.

_Ho.11: There is no Association of Working Status of Mothers with Cognitive Skills of Children._

_Ho.12: Father's Occupation is not Associated with the Cognitive Skills of Children._

Separate analyses were done to study the association of parents professional status with cognitive skills. Since, most of the mothers in the present study were housewives and non-working, hence only two categories were made regarding working status of mothers viz; working and non-working and children belonging to group of high on cognitive skills and low on cognitive skills were classified into these two categories as presented in the following table no. 4.5.

Table No. 4.11
Association of Working Status of Mothers with Cognitive Skills of Children

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Working</th>
<th>Non-Working</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS</td>
<td>22</td>
<td>37</td>
<td>4.23*</td>
</tr>
<tr>
<td>LCS</td>
<td>13</td>
<td>43</td>
<td>4.23*</td>
</tr>
</tbody>
</table>

$\chi^2 (\alpha, 0.05) = 3.84^*$

$\chi^2 (\alpha, 0.01) = 6.63^**$
The above table no.4.11, indicates that the estimated value of \( \chi^2 \) was 4.23, for degree of freedom (df=1) at the 0.05 level of confidence. It suggests that the data provided sufficient evidence to reject the hypothesis. Hence, the null hypothesis (Ho.11) was rejected at the specified level of confidence, leading to an inference that the working status of mothers was associated with the cognitive skills of the children of grades-I,II, & III.

As far as occupation of father is concerned it was classified into four categories viz: Lower Grade Job, Business, General Officer Cadre Job and Executive Job. The data corresponding to frequencies were recorded in cells of 2 x 4 contingency table and their \( \chi^2 \) value have been presented in the following table no. 4.12.

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Lower Grade Job</th>
<th>Business</th>
<th>General Officer Cadre</th>
<th>Executive</th>
<th>( \chi^2 ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS</td>
<td>03</td>
<td>13</td>
<td>36</td>
<td>07</td>
<td>17.87**</td>
</tr>
<tr>
<td>LCS</td>
<td>11</td>
<td>25</td>
<td>19</td>
<td>01</td>
<td></td>
</tr>
</tbody>
</table>

It may be observed from the table no. 4.12, that the estimated Chi-square (\( \chi^2 \)) value of 17.87 exceeds the theoretical value at the 0.01 level of confidence. It indicates that the data provided sufficient evidence to reject the hypothesis. Hence, the null hypothesis (Ho.12) was rejected at the specified level of confidence, leading to an inference that the occupation of father was highly associated with the cognitive skills of the children.

**Summary Profile:** Association of Cognitive Skills with Certain Home Factors can be summarised as follows:

- Fathers' qualification was not associated with the cognitive skills of children.
- Mothers' qualification was also not associated with the cognitive skills of children.
- There was no correspondence between type of family (Nuclear/Joint) and cognitive skills of children.
- There was correspondence between economic status of family with cognitive skills of children.
- Working status of mother has been found to be associated with cognitive skills of children.
- Fathers' occupational level has been found to be associated with cognitive skills of children.
A.3: Association of Home Factors and Social Skills

The social skills of children of grades-I, II and III were measured through the Scale of Social Skills, which was developed and validated by the investigator. Teachers Ratings on social skills were procured for all the students and each rating was converted into a score from a 11 point scale. Each child was rated by at least three teachers. Ratings were pooled and an average of this pooled score was converted into percentage score. The scores were arranged in ascending order and Q₁ and Q₃ were computed. Children whose score fell above Q₃ were classified high on social skills and those whose score fell below Q₁ were classified as low on social skills. High and low groups of children on social skills were identified for grades-I, II and III and following analyses were done.

A.3.1/2: Association of Social Skills and Educational Qualifications of Parents.

Association of parents' qualifications with social skills of children was studied separately for fathers' and mothers' qualifications.

Three groups of fathers and mothers were made on the basis of qualifications, exactly on the same pattern as was done to study association of parent's qualification with cognitive skill. This analysis was done to test the following hypotheses:

- Ho.13: There is no Association between Educational Qualifications of Father and Social Skills of Children.
- Ho.14: There is no Association between Educational Qualifications of Mother and Social Skills of Children.

The data was distributed in a 2 x 3 contingency table for computing Chi-square (\(\chi^2\)) for social skills of high and low groups of children for grades-I, II and III pooled together. The distribution of frequencies along with \(\chi^2\) value have been presented in the following table nos. 4.13 and 4.14 respectively.

Table No. 4.13

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Illiterate</th>
<th>Secondary Education</th>
<th>Higher Education</th>
<th>(\chi^2) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSS</td>
<td>0</td>
<td>17</td>
<td>41</td>
<td>6.75*</td>
</tr>
<tr>
<td>LSS</td>
<td>0</td>
<td>36</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

HSS = High on Social Skills
LSS = Low on Social Skills

The above table no. 4.13, depicts that the estimated \(\chi^2\) value of 6.75 at the 0.05 level of confidence, indicated that the value was significant at the 0.05 level of confidence which provided sufficient evidence to reject the hypothesis. Hence, the null hypothesis (Ho.13) was
rejected at the specified level of confidence, leading to an inference that the qualifications of fathers were associated with the social skills of children of grades-I, II and III.

A similar analysis was done for qualifications of mothers.

Table No. 4.14
Association of Qualifications of Mothers with Social Skills of Children

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Illiterate</th>
<th>Secondary Education</th>
<th>Higher Education</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSS</td>
<td>2</td>
<td>30</td>
<td>26</td>
<td>4.18</td>
</tr>
<tr>
<td>LSS</td>
<td>4</td>
<td>46</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (0.05) = 5.99^*$
$\chi^2 (0.01) = 9.21^{**}$

It may be seen from the table no. 4.14, that the estimated value of 4.18 does not exceed the theoretical value of 5.99, even at the 0.05 level of confidence. Thus, the estimated value was not found significant at the 0.05 level of confidence. It indicates that the null hypothesis (Ho.14) was not rejected at the specified level of confidence. It may be inferred that the qualifications of mothers were not found to be associated with the social skills of children of grades-I, II, and III.

A.3.3: Association of Type of Family with Social Skills of Children

Association of type of family and social skills was analysed through $\chi^2$. The analysis was done to test the following null hypothesis.

Ho.15: Type of Family (Nuclear/Joint) is not Associated with Social Skills of Children.

The types of families were studied as: (i) Nuclear family & (ii) Joint family. Nuclear and Joint families were identified exactly on the same pattern as for studying association of type of family with parental involvement.

A 2 x 2 contingency table was drawn and frequencies corresponding to each cell have been revealed in table no. 4.15, and $\chi^2$ value has also been presented alongwith.

Table No. 4.15
Association of Types of Families with Social Skills of Children

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Nuclear Family</th>
<th>Joint Family</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSS</td>
<td>44</td>
<td>14</td>
<td>1.92</td>
</tr>
<tr>
<td>LSS</td>
<td>59</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (0.05) = 3.84^*$
$\chi^2 (0.01) = 6.63^{**}$
The above table no. 4.15, reveals that the estimated $\chi^2$ value of 1.92 does not exceed the theoretical value of 3.84 even at the 0.05 level of confidence. Thus, the null hypothesis (Ho. 15) could not be rejected at the specified level of confidence, leading to an inference that there was no correspondence between type of family and social skills of children of grades I, II and III.

**A.3.4: Association of Economic Status of Families with Social Skills of Children**

This analysis was done to test the following null hypothesis.

**Ho.16: There is no Correspondence between Economic Status of Families with Social Skills of Children.**

For this analysis, high and low groups of children were categorised into three groups on the basis of economic status of the parents, viz; high, moderate, and low income parents.

To test the association of economic status of parents and social skills of children, $\chi^2$ test was employed. The cells in the 2 x 3 contingency table depict the frequencies of children belonging to each category and have been recorded in the table no. 4.16.

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>High Income</th>
<th>Moderate Income</th>
<th>Low Income</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSS</td>
<td>21</td>
<td>32</td>
<td>05</td>
<td>9.25**</td>
</tr>
<tr>
<td>LSS</td>
<td>18</td>
<td>30</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 \ (2, \ 0.05) = 5.99^* \\
(0.01) = 9.21^{**}$

It may be seen from the table no. 4.16, that the estimated Chi-square ($\chi^2$) value 9.25 exceeds the theoretical value of 9.21 at the 0.01 level of confidence. It shows that the data did not provide an evidence to support the hypothesis. Hence, the null hypothesis (Ho. 4.16) was rejected at the specified level of confidence, leading to an inference that the economic status of family was associated with the social skills of children.

**A.3.5/6: Association of Occupational Status of Parents with Social Skills of Children**

The analysis was done to test the following null hypotheses.

**Ho.17: There is no Correspondence Between Working Status of Mothers with Social Skills.**

**Ho.18: There is no Association of Occupations of Fathers with Social Skills.**

The data was distributed into a 2 x 2 contingency table for computing Chi-square ($\chi^2$) for high and low groups of children based on their social skills.
The children from grades-I, II, and III were pooled together. Most of the mothers were not in job and were housewives, hence only two categories of working and non-working mothers were identified. The children with high social skills were classified into two groups: whether belonging to working mothers or non-working mothers. Similarly children of low social skills were categorised and a $2 \times 2$ contingency table was drawn to compute $\chi^2$ value.

**Table No. 4.17**

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Working</th>
<th>Non-working</th>
<th>$\chi^2$ values</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSS</td>
<td>15</td>
<td>43</td>
<td>0.15</td>
</tr>
<tr>
<td>LSS</td>
<td>20</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (1, 1) (0.05) = 3.84^*$  
$\chi^2 (0.01) = 6.63^{**}$

The above table no. 4.17, shows that the estimated $\chi^2$ value of 0.15 for degree of freedom (df=1) does not exceed the theoretical value of 3.84 even at the 0.05 level of confidence. It suggests that the data did not provide sufficient evidence to reject the hypothesis. Hence, the null hypothesis (Ho.17), was not rejected at the specified level of confidence, leading to an inference that working status of mother was not associated with the social skills of children of grades-I, II, and III.

A similar analysis was done for father's occupations. For this analysis, fathers' occupations were categorised into four categories of Lower Grade Jobs, Business, General Jobs and Executive Jobs. A $2 \times 4$ contingency table was drawn and $\chi^2$ was computed.

**Table No. 4.18**

<table>
<thead>
<tr>
<th>Skills Level</th>
<th>Lower Grade Job</th>
<th>Business</th>
<th>General Officer Cadre</th>
<th>Executive Job</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSS</td>
<td>14</td>
<td>14</td>
<td>23</td>
<td>7</td>
<td>4.56</td>
</tr>
<tr>
<td>LSS</td>
<td>14</td>
<td>28</td>
<td>23</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2 (1, 1) (0.05) = 5.99^*$  
$\chi^2 (0.01) = 9.21^{**}$

It may be observed from table no. 4.18, that the estimated chi-square ($\chi^2$) value 4.56 does not exceed the theoretical value of 5.99 even at the 0.05 level of confidence. It indicates that the null hypothesis (Ho. 18), could not be rejected at the specified level of confidence, leading to an inference that the occupational status of father was not found to be associated with the social skills of children of grades-I, II & III.
Summary Profile: Association of social skills with certain home factors can be summarized as follows:

- Fathers' qualifications were associated with social skills of children.
- Mothers' qualifications were not found to be associated with social skills of children.
- There was no correspondence between type of family (Nuclear/Joint) and social skills of children.
- There was correspondence between economic status of parents with social skills of children.
- Working status of mother has not been found to be associated with social skills of children.
- Fathers' occupational level also has not been found to be associated with social skills of children.

After having studied the association of some home factors with parental involvement in Section-A.1, with cognitive skills in Section-A.2 and with social skills in Section-A.3, the investigator analysed the data to study, whether parental involvement affects cognitive skills of primary school children or not. These analyses have been discussed in the following paragraphs of Section-A.4.

A.4: Parental Involvement and Cognitive Skills

This analysis was done by pooling the scores of cognitive skills, subjectwise viz., all the nine cognitive skills identified for English were taken together and pooled score of children of High Involved Parents (HIP) and Low Involved Parents (LIP) were computed separately for grade-I, grade-II and grade-III. Similarly pooled scores of children of HIP and LIP were computed for five cognitive skills in Mathematics and ten cognitive skills in Environmental Studies, and t-test was employed to study the difference in means of children of HIP and LIP separately for grades-I, II, and III.

The following null hypotheses were formulated to be tested through this analysis.

Ho.19: Mean Scores on Cognitive Skills in English are not different for High and Low Parental Involvement Children of
(i) grade-I,
(ii) grade-II, &
(iii) grade-III.

Ho.20: Mean Scores on Cognitive Skills in Mathematics are not different for Children belonging to HIP and LIP for
(i) grade-I,
(ii) grade-II, &
(iii) grade-III.
**Ho.21:** Mean Scores on Cognitive Skills in Environmental Studies are not different for Children belonging to HIP and LIP for

(i) grade-I,
(ii) grade-II, &
(iii) grade-III.

### A.4.1: Parental Involvement and Cognitive Skills in English

Means, SD's and t-ratios for difference in means on pooled scores of all the nine cognitive skills in English were computed for HIP and LIP children of grades-I, II and III and have been reported in the table no. 4.19.

**Table No. 4.19**

<table>
<thead>
<tr>
<th>Grade</th>
<th>SD Mean (HIP, LIP)</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>17.92, 11.28</td>
<td>1.29</td>
</tr>
<tr>
<td></td>
<td>n=25, n=16</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>16.79, 12.82</td>
<td>2.31*</td>
</tr>
<tr>
<td></td>
<td>n=26, n=19</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>15.34, 17.84</td>
<td>12.63**</td>
</tr>
<tr>
<td></td>
<td>n=22, n=30</td>
<td></td>
</tr>
</tbody>
</table>

HIE: Children of High Involved Parents
LIP: Children of Low Involved Parents

The table no. 4.19, shows that, for grade-I, the t-ratios for the difference in mean scores of nine cognitive skills for two groups of High Involved Parents and Low Involved Parents children was not found to be significant even at the 0.05 level of confidence. It means that the difference may be ascribed to chance factor. The null hypothesis [Ho.19(i)] does not stand rejected, leading to an inference that parental involvement and cognitive skills in English operate independent of each other. It may be concluded that children of grade-I with high and low parental involvement scored equal on cognitive skills in English.

The above table depicts that the t-ratio for the difference in means of grade-II children of high and low involved parents was found to be significant at the 0.05 level of confidence. It suggested that the two groups were different beyond the contribution of chance on cognitive skills in English. Thus, the null hypothesis [Ho. 19(ii)] stands rejected. An examination of means of the two groups revealed that the mean scores of children belonging to low involved...
parents surpassed the mean scores of children of high involved parents. It may be concluded that low parental involvement results into high scores on cognitive skills in English for grade-II children.

The above table also reveals that for grade-III, the t-ratio for the difference in means of children belonging to high and low involved parents was found to be significant at the 0.01 level of confidence. It suggested that the two groups were different beyond the contribution of chance on cognitive skills in English. The null hypothesis [Ho.19(iii)] therefore stands rejected. An examination of means of the two groups suggested that mean score of grade-III children belonging to highly involved parents was higher (M=53.21) as compared to that of children belonging to low involved parents (M=38.30). It may be concluded that high parental involvement results into high scores on cognitive skills in English for grade-III children.

A.4.2: Parental Involvement and Cognitive Skills in Mathematics

A similar analysis was done for composite score on five cognitive skills in Mathematics separately for grades-I, II and III.

The t-ratios, means, and SD's of children of grades-I, II, & III, and belonging to high involved parents and low involved parents have been presented in the following table no. 4.20.

<table>
<thead>
<tr>
<th>Grade</th>
<th>SD</th>
<th>Mean</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HIP</td>
<td>LIP</td>
<td>HIP</td>
<td>LIP</td>
</tr>
<tr>
<td>I</td>
<td>13.92</td>
<td>15.20</td>
<td>70.04</td>
<td>69.56</td>
</tr>
<tr>
<td></td>
<td>n=25</td>
<td>n=16</td>
<td>n=25</td>
<td>n=16</td>
</tr>
<tr>
<td>II</td>
<td>18.46</td>
<td>15.93</td>
<td>57.72</td>
<td>50.76</td>
</tr>
<tr>
<td></td>
<td>n=26</td>
<td>n=19</td>
<td>n=26</td>
<td>n=19</td>
</tr>
<tr>
<td>III</td>
<td>12.79</td>
<td>18.10</td>
<td>56.36</td>
<td>44.36</td>
</tr>
<tr>
<td></td>
<td>n=22</td>
<td>n=30</td>
<td>n=22</td>
<td>n=30</td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence  
** Significant at the 0.01 level of confidence

It may be observed from the table no. 4.20, that the t-ratios for difference in mean scores of two groups of children of high involved and low involved parents for grade-I does not exceed the table value even at the 0.05 level of confidence. It suggests that the two groups were not different beyond the contribution of chance. The null hypothesis [Ho.20(i)] was therefore not rejected at the specified level.
The table no. 4.20, also shows that the t-ratio for the difference in means of grade-II children belonging to high and low parental involvement groups was found to be significant at the 0.01 level of confidence, indicating that the two groups were different beyond chance factor. Hence, the null hypothesis [Ho.20(ii)] was rejected at the specified level of confidence. An examination of means of the two groups suggested that the children of HIP yielded higher means (M=57.72) on cognitive skills in Mathematics as compared to that of LIP (M=50.76). It may be concluded that high parental involvement results into higher Mathematical cognitive skills of grade-II children.

The table no. 4.20, also shows that the t-ratio for the difference in means of grade-III children belonging to high and low parental involvement groups was found to be significant at the 0.01 level of confidence, indicating that the two groups were not equal. Hence, the null hypothesis [Ho.20(iii)] was rejected at the specified level of confidence. An examination of the means of the two groups suggested that the children of HIP yielded higher means (M=56.36) on cognitive skills in Mathematics as compared to that of LIP (M=44.36). It may be concluded that high parental involvement results into higher Mathematical cognitive skills of grade-III children.

A.4.3: Parental Involvement and Cognitive Skills in Environmental Studies

An analysis of performance on pooled cognitive skills in Environmental Studies for children of grades-I, II, III and belonging to high involved parents and low involved parents was done and t-ratios for the difference in mean scores of the two groups have been recorded in the table no. 4.21 below:

<table>
<thead>
<tr>
<th>Grade</th>
<th>SD</th>
<th>Mean</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HIP</td>
<td>LIP</td>
<td>HIP</td>
<td>LIP</td>
</tr>
<tr>
<td>I</td>
<td>18.72</td>
<td>23.09</td>
<td>56.24</td>
<td>52.5</td>
</tr>
<tr>
<td></td>
<td>n=25</td>
<td>n=16</td>
<td>n=25</td>
<td>n=16</td>
</tr>
<tr>
<td>II</td>
<td>12.02</td>
<td>13.42</td>
<td>41.68</td>
<td>37.38</td>
</tr>
<tr>
<td></td>
<td>n=26</td>
<td>n=19</td>
<td>n=26</td>
<td>n=19</td>
</tr>
<tr>
<td>III</td>
<td>20.70</td>
<td>15.48</td>
<td>46.57</td>
<td>34.1</td>
</tr>
<tr>
<td></td>
<td>n=22</td>
<td>n=30</td>
<td>n=22</td>
<td>n=30</td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence
** Significant at the 0.01 level of confidence

The above table depicts that the t-ratios for the difference in means of children of high and low involved parents was found to be significant at the 0.05 level of confidence. It
suggested that the two groups of grade-1 children were different beyond the contribution of chance on cognitive skills in Environmental Studies. Thus, the null hypothesis \([H_0.21(i)]\) stands rejected. An examination of means of the two groups indicated that mean scores of children of high involved parents surpassed the mean scores of children of low involved parents. It may be concluded that high parental involvement results into high scores on cognitive skills in Environmental Studies for grade-1 children.

The table no. 4.21, also shows that the \(t\)-ratio for difference in means of grade-11 children belonging to high and low parental involvement groups was found to be significant at the 0.01 level of confidence, indicating that the two groups were different from each other beyond chance. Hence, the null hypothesis \([H_0.21(ii)]\) was rejected at the specified level of confidence. An examination of the means of the two groups suggested that the children of HIP yielded higher means \((M=41.68)\) on cognitive skills in Environmental Studies as compared to LIP \((M=37.38)\). It may be concluded that high parental involvement results into higher Environmental Studies cognitive skills of grade-11 children.

However, the \(t\)-ratio for the difference in means of grade-111, children belonging to high and low parental involvement groups was found to be significant at the 0.01 level of confidence, indicating that the two groups were different beyond the contribution of chance. Hence, the null hypothesis \([H_0.21(iii)]\) was rejected at the specified level of confidence. An examination of the means of the two groups suggested that the children of HIP yielded higher means \((M=46.57)\) on cognitive skills in Environmental Studies as compared to those of LIP \((M=34.10)\). It may be concluded that high parental involvement results into higher scores on cognitive skills in Environmental Studies of grade-111 children.

A.4.4: Analysis of Parental Involvement and Individual Cognitive Skills in English

The above analyses revealed that parental involvement yielded higher mean scores on pooled cognitive skills in English, Mathematics and Environmental Studies.

Since a definite trend was observed in the development of cognitive skills for grade-1 to grade-11 through grade-111, it was felt necessary to analyse differences in each individual cognitive skills, due to parental involvement.

Following hypotheses were formulated to be tested through this analysis.

Ho.22: There is no Significant difference in Children of High and Low Parental Involvement groups at grades-I, II & III for the Cognitive Skill in:

(i) Listening,
(ii) Speaking,
(iii) Reading,
(iv) Writing,
(v) Comprehension,
The scores of each child on each individual cognitive skill in English were tabulated and their means, SD's were calculated. t-ratios for difference in mean scores of children of high involved parents and low involved parents were computed for each cognitive skill and have been recorded in the following table no. 4.22.

<table>
<thead>
<tr>
<th>Cognitive Skills in English</th>
<th>Parental involvement levels</th>
<th>Grade-1</th>
<th>Grade-2</th>
<th>Grade-3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>df</td>
<td>t-ratio</td>
</tr>
<tr>
<td><strong>Listening</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>63.36</td>
<td>19.91</td>
<td>39</td>
<td>1.67</td>
</tr>
<tr>
<td>L</td>
<td>65.68</td>
<td>15.41</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Speaking</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>6.64</td>
<td>21.48</td>
<td>39</td>
<td>3.69**</td>
</tr>
<tr>
<td>L</td>
<td>2.06</td>
<td>8.25</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Reading</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>45</td>
<td>35.35</td>
<td>39</td>
<td>1.82</td>
</tr>
<tr>
<td>L</td>
<td>48.43</td>
<td>29.53</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Writing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>83</td>
<td>22.5</td>
<td>39</td>
<td>1.12</td>
</tr>
<tr>
<td>L</td>
<td>81.25</td>
<td>23.27</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Comprehension</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>23</td>
<td>30.55</td>
<td>39</td>
<td>6.44**</td>
</tr>
<tr>
<td>L</td>
<td>12.5</td>
<td>15.81</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Functional Grammar</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>76.22</td>
<td>27.13</td>
<td>39</td>
<td>3.28**</td>
</tr>
<tr>
<td>L</td>
<td>81.5</td>
<td>19.44</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Self Learning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>70.28</td>
<td>24.72</td>
<td>39</td>
<td>5.44**</td>
</tr>
<tr>
<td>L</td>
<td>78.56</td>
<td>16.60</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Language Usage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>50.28</td>
<td>25.40</td>
<td>39</td>
<td>0.056</td>
</tr>
<tr>
<td>L</td>
<td>50.37</td>
<td>23.79</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Vocabulary Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>46</td>
<td>39.31</td>
<td>39</td>
<td>4.54**</td>
</tr>
<tr>
<td>L</td>
<td>54.68</td>
<td>26.17</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence
** Significant at the 0.01 level of confidence

The above table shows that for grade-i, t-ratios for the difference in means of two groups of high and low parental involvement on cognitive skills in Speaking, Comprehension,
Use of Functional Grammar, Self-Learning, and Vocabulary Control (in English), were found significant at the 0.01 level of confidence. Thus, the null hypotheses \([H_0 \text{ 22(ii), 22(v), 22(vi), } 22(vii), \text{ and 22(ix)}]\) were rejected at the specified level of confidence. An examination of means of the two groups of high and low parental involvement revealed that the mean score of high parental involvement group surpassed the mean score of low parental involvement group for skills in Speaking and Comprehension. The performance of LIP was higher than that of HIP for skills in Using Functional Grammar, Self-Learning and Vocabulary Control.

The t-ratios for the difference in means of the children belonging to high involved parents and low involved parents, were not found to be significant even at the 0.05 level of confidence for rest of the individual skills in English viz: Listening, Reading, Writing and Language Usage. It suggested that two groups of grade-I children were not different beyond the contribution of chance with respect to these four cognitive skills in English.

The table no. 4.22, also shows that for the grade-II, the t-ratio for the difference in means of high and low involved parents group for the cognitive skills in English viz: Writing, Usage of Functional Grammar, Self-Learning and Language Usage were found significant at the 0.01 level of confidence. The null hypotheses \([H_0 \text{ 22 (iv), 22(vi), 22(vii), and 22 (viii)}]\) were rejected at the specified level. An examination of mean scores of children belonging to high involved parents has been found to be higher than that of low involved parents for all these four skills. The t-ratios for the difference in means of the children belonging to HIP and LIP groups, were not found significant even at the 0.05 level of confidence for the rest of the five skills in English viz: Listening, Speaking, Reading, Comprehension and Vocabulary Control. The null hypotheses \([H_0 \text{ 22(i), 22(ii), 22(iii), 22(v), 22(ix)}]\) were not rejected at the specified level. It suggested that high parental involvement and low parental involvement yielded equal levels of these five skills among children of grade-II.

For grade-III, the t-ratios for difference in means of HIP and LIP children were found significant at the 0.01 level of confidence for the cognitive skills in Listening, Reading, Writing, Comprehension, Using Functional Grammar, Self-Learning, Language Usage and Vocabulary Control. The null hypotheses corresponding to these skills viz. \([H_0 \text{ 22(i), 22 (iii), 22 (iv), 22(v), } 22 (vi), 22 (vii), 22 (viii) \text{ and 22 (ix)}]\) were rejected. An examination of the means of the two groups corresponding to each of these skills revealed that high parental involvement yielded higher mean scores on these eight cognitive skills in English. However, t-ratio for difference in means of two groups was not found significant for skill in Speaking. Thus, the null hypothesis \([H_0 \text{ 22 (ii)}]\) was not rejected at the specified level. It suggested that the HIP and LIP groups of grade-III children were equal on skill in Speaking.

These results have also been depicted through line diagrams vide Fig. 4.22(f).
GRAPH SHOWING MEAN SCORES ON INDIVIDUAL COGNITIVE SKILLS IN ENGLISH FOR GRADES-I, II, & III

Fig. 4.22(f)

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Similar analysis was done to analyse differences in cognitive skills in Mathematics for children of High Involved and Low Involved Parents, through t-ratios.

It may be observed from the table no. 4.23, that out of the five Mathematical skills identified for primary school children, only four were applicable for grades-I and II viz: Understanding, Applying, Solving and Recognising. The Mathematical skill Estimating is not applicable for grade-I and II children. It is included in the prescribed learning outcomes of only grade-III, hence t-test was applied for this skill only on the scores of grade-III children.

Following hypotheses were formulated to be tested through this analysis.

Ho.23: There is no Significant difference in Cognitive Skills of Children of High and Low Involved Parents for Grades-I, II and III, for Skills in
(i) Understanding,
(ii) Applying,
(iii) Solving,
(iv) Recognising, and
(v) Estimating (only for grade-III).

Table No. 4.23
t-ratios for difference in mean scores of children belonging to HIP and LIP for individual cognitive skills in Mathematics

<table>
<thead>
<tr>
<th>Cognitive Skills in Mathematics</th>
<th>Parental involvement levels</th>
<th>Grade-I</th>
<th>Grade-II</th>
<th>Grade-III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>df</td>
<td>t-ratio</td>
</tr>
<tr>
<td>Understanding</td>
<td>H</td>
<td>74.8</td>
<td>17.94</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>70.31</td>
<td>18.03</td>
<td>39</td>
</tr>
<tr>
<td>Applying</td>
<td>H</td>
<td>70.56</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>77.75</td>
<td>10.95</td>
<td>39</td>
</tr>
<tr>
<td>Solving</td>
<td>H</td>
<td>79.2</td>
<td>20.59</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>75</td>
<td>25.03</td>
<td>39</td>
</tr>
<tr>
<td>Recognising</td>
<td>H</td>
<td>20</td>
<td>30.07</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>28.12</td>
<td>43.66</td>
<td>39</td>
</tr>
<tr>
<td>Estimating</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>L</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence
** Significant at the 0.01 level of confidence
Analysis & Interpretation

It can be seen from the above table that for grade-I, t-ratios for the difference in means of HIP and LIP were found to be significant at the 0.01 level of confidence for the skills in Understanding, Applying and Recognising and for skill in Solving it was found significant at the 0.05 level of confidence. Thus, the null hypotheses [Ho 23 (i), 23(ii), 23(iii), and 23 (iv)] were rejected at the specified levels. It suggested that the two means were different beyond the contribution of chance. An examination of the means of respective two groups corresponding to the four skills revealed that in case of skills in Understanding and Solving, means of the HIP surpassed that of LIP, whereas mean of LIP group was higher than that of HIP in case of skills in Applying and Recognising.

For grade-II, the t-ratios for the difference in means of LIP and HIP groups on the skills in Understanding, Applying, and Solving were significant at the 0.01 level of confidence. Thus, the null hypotheses [Ho. 23 (i), 23 (ii), and 23 (iii)] were rejected at the specified level. It suggested that the two means were different beyond the contribution of chance. An examination of the two respective means indicated that HIP yielded higher mean for skill in Understanding whereas LIP group performed higher on skills in Applying and Solving. For skill in Recognising, t-ratio was not found significant even at the 0.05 level of confidence. It suggested that the two means were not different beyond the contribution of chance. The null hypothesis [Ho. 23 (iv)] was not rejected, leading to an inference that LIP and HIP children of grade-II achieved equal on skill in Recognising.

However for grade-III, the t-ratios for difference in means of two groups of HIP and LIP were found significant at the 0.01 level of confidence for skills in Understanding, Applying, Solving and Estimating. Thus, the null hypotheses [Ho. 23 (i), 23 (ii), 23 (iii) and 23 (v)] stand rejected at the specified level. The t-ratio for the difference in means for skill in Recognising was significant at the 0.05 level of confidence. The null hypothesis [Ho.23 (iv)] was rejected at the specified level. It suggested that the two means were different beyond the contribution of chance for children of grade-III. An examination of means of children of HIP and LIP revealed that in case of all the five Mathematics skills, HIP group outperformed the LIP group of grade-III children.

The difference in means of HIP and LIP for all the five Mathematical skills have also been depicted through line graphs vide Fig. 4.23 (f).
GRAPH SHOWING MEAN SCORES ON INDIVIDUAL COGNITIVE SKILLS IN MATHEMATICS FOR GRADES-I, II, & III

Fig. 4.23(f)
A.4.6: Analysis of Parental Involvement and Individual Cognitive Skills in Environmental Studies

In the subject of Environmental Studies five cognitive skills, viz.: Recognising, Exploring, Knowing, Understanding and Sorting were measured for the grades-I and II. But all the ten cognitive skills were measured for the two groups of children (HIP & LIP) for grade-III. Since it has been assumed that skills in Analysing, Relating, Classifying, Observing and Inferring don't develop at grades-I, & II level as followed by Minimum Levels of Learning (MLL). Hence analyses were done for five skills for grades-I & II children and for all the ten skills for grade-III children.

Similar analysis was done to analyse differences in means of LIP and HIP on skills in Environmental Studies for grades-I, II & III children of High Involved and Low Involved Parents. The t-ratios thus computed for difference in means of HIP and LIP for each individual skill in EVS have been recorded in the following table no. 4.24.

Following hypotheses were formulated to be tested through this analysis.

Ho.24: There is no Significant difference in Cognitive Skills of Grades-I,II & III Children of High and Low Involved Parents for skills in

(i) Recognising,
(ii) Exploring,
(iii) Knowing,
(iv) Understanding,
(v) Sorting,
(vi) Analysing,
(vii) Relating,
(viii) Classifying,
(ix) Observing, and
(x) Inferring

(Only for grade III)
It may be seen from the above table no. 4.24, that for grade-I children, the t-ratios for the difference in means of LIP and HIP groups were found to be significant at the 0.01 level of confidence for skills in Exploring, Knowing and Sorting, whereas t-ratios for the skills in Recognising and Understanding were found significant at the 0.05 level of confidence. Thus, the null hypotheses [Ho.24(i), 24(ii), 24(iii), 24(iv), and 24(v)] stand rejected at the specified level. It suggested that the means of the two groups were different beyond the contribution of chance. An examination of the means of two corresponding groups suggested that for skills in Recognising, Exploring and Understanding mean of HIP surpassed that of LIP group whereas, children of LIP outperformed the HIP group for skills in Knowing and Sorting.

For grade-II children, the t-ratios for the difference in means of HIP and LIP groups were found to be significant at the 0.01 level of confidence for the skills in Knowing and Understanding, suggesting that the two means were different beyond chance. The null hypotheses [Ho 24 (iii) and 24 (iv)] were therefore rejected. In case of both these skills, the...
means of HIP group were higher than that of LIP. The t-ratios for the difference in means of LIP and HIP were not found significant even at the 0.05 level of confidence for skills in Recognising, Exploring and Sorting. The null hypotheses [Ho 24 (i), 24(ii) and 24 (v)] were therefore not rejected. It suggested that the difference in means of HIP and LIP, if any, was due to chance factor and that HIP and LIP groups performed equal on skills in Recognising, Exploring and Sorting.

For grade-III children, the t-ratios for the difference in means of HIP and LIP were found to be significant at the 0.01 level of confidence for eight out of ten skills in EVS viz: Recognising, Knowing, Understanding, Sorting, Analysing, Relating, Classifying and Inferring. The null hypotheses [Ho 24 (i), 24 (iii), 24 (iv), 24 (v), 2 (vi), 24 (vii), 24 (viii), and 24 (x)] were therefore rejected, suggesting that the two respective groups were different beyond chance on these skills. A further probe into their means suggested that for all these eight skills, HIP group was higher as compared to that of LIP group. It may be concluded that high parental involvement yielded higher achievement levels on cognitive skills in Recognising, Knowing, Understanding, Sorting, Analysing, Relating, Classifying and Inferring. The t-ratios for rest of the two skills viz: Exploring and Observing were not found significant at the 0.05 level of confidence, leading to an inference that hypotheses [Ho 24 (iii) and 24 (ix)] may not be rejected. It may be concluded that the high and low parental involvement yielded equal levels of achievement on skills in Exploring and Observing.

Fig. 4.24(f) shows the graphical presentations of the differences in means of HIP and LIP on ten cognitive skills in EVS.
GRAPH SHOWING MEAN SCORES ON INDIVIDUAL COGNITIVE SKILLS IN EVS FOR GRADES-I, II, & III.

Fig. 4.24(f)

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PART-B
SCHOOL INTERVENTION

In the preceding part-A, analyses related with parental involvement were reported. This part has been devoted to the analyses related to school intervention through class climate.

Analyses have been reported under three sub-headings viz:

B.1: Subject-wise Differences in Classroom Interaction Category Proportions in Language, Mathematics and Environmental Studies.

B.2: Grade-wise Differences in Classroom Interaction Category Proportions of Grades-I, II & III.

B.3: To Identify the Democratic/Participative and Authoritarian/Non-Participative Classes based on Classroom Interaction and Interpretive Ratios.

The research literature reveals that global factors associated with school, such as curriculum (Weikart, 1969), type of institutions (Bruner, 1980), or different schools (Blatch Ford, 1985), and many others have not been found to yield many significant differences in learning outcomes. It is rather believed that teacher in the classroom constitutes an important component of the child's environment rather than school as a whole.

Recent reviews lists twenty five variables which have commonly been researched in studies aimed at isolating effects of classroom characteristics, some of which have been reported to be:

- **Teacher Related Factors:**
  - Clarity of teachers presentation.
  - Teacher enthusiasm.
  - Teacher absence.
  - Teacher experience.
  - Teacher flexibility.
  - Teacher knowing of subject area etc.

- **Student Related Factors:**
  - Student absence.
  - Student opportunity to learn the material etc.

- **Teacher and Student Related Factors:**
  - Variability of teacher's classroom activities (classroom interaction).
  - Time spent on class participation.
  - Class management style.
Classroom interaction reflects upon the activities performed by teachers and students and also throws light on the type of climate that results out of the interaction in the class. Hence classroom interactions were studied under school intervention variable along with resulting class climate.

At least 54 classes were observed through primary classroom interaction system developed and validated by the investigator for this purpose (it has been discussed in details in Chapter-II). The classroom behaviours were encoded, decoded and some specific interpretative ratios were computed from the millage matrices of pooled observations of teachers classroom interactions subject-wise and grade-wise. Calculation procedures have already been discussed in Chapter-II.

B.1: Subject-wise Differences in Classroom Interaction Category Proportions in Language, Mathematics and Environmental Studies

The classroom interaction observation matrices (Language, Mathematics and Environmental Studies) were pooled subject-wise. In all 54 teachers classroom observations were taken into consideration. Observations of 17, 18 & 19 teachers were pooled on a 20 x 20 matrix separately for each of the three subjects. And then this matrix was converted onto a millage matrix for computing nine ratios separately for Language, Mathematics and Environmental Studies and have been recorded in the table no. 4.25 below. The millage matrices for English, Mathematics, Environmental Studies have been appended vide Appendix: 2(vi)-a, b, c.

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Category</th>
<th>Language</th>
<th>Mathematics</th>
<th>Environmental Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TAR</td>
<td>58.7</td>
<td>62.1</td>
<td>65.7</td>
</tr>
<tr>
<td>2.</td>
<td>PAR</td>
<td>38.3</td>
<td>32.6</td>
<td>29.3</td>
</tr>
<tr>
<td>3.</td>
<td>CSR</td>
<td>3</td>
<td>5.3</td>
<td>5</td>
</tr>
<tr>
<td>4.</td>
<td>TPAR</td>
<td>140.50</td>
<td>179.48</td>
<td>242.45</td>
</tr>
<tr>
<td>5.</td>
<td>VDR</td>
<td>4.94</td>
<td>10.35</td>
<td>15.78</td>
</tr>
<tr>
<td>6.</td>
<td>PPIR</td>
<td>4.69</td>
<td>6.74</td>
<td>6.14</td>
</tr>
<tr>
<td>7.</td>
<td>DNCR</td>
<td>92.59</td>
<td>102.77</td>
<td>176.19</td>
</tr>
<tr>
<td>8.</td>
<td>DCR</td>
<td>10.59</td>
<td>20.34</td>
<td>15.07</td>
</tr>
<tr>
<td>9.</td>
<td>SSR</td>
<td>93.1</td>
<td>92.3</td>
<td>91.7</td>
</tr>
</tbody>
</table>

Table No. 4.25

Subject-wise Category, Ratios for Millage Matrix of Pooled Observations of Classroom Interactions (Grades-I, II & III)
It may be observed from the above table no. 4.25, that the 'Teacher Activity Ratio' (TAR) ranged from 58 to 66 for Language, Mathematics and Environmental Studies. TAR for Environmental Studies was found to be highest and that of Language being the lowest among the classroom interaction for the three subjects.

The 'Pupil Activity Ratio' (PAR) ranged from 29 to 38. For Language the ratio was found to be 38.3 and for Mathematics it was 32.6 and for Environmental Studies 'TAR' was 29.3 respectively.

The table revealed that the 'Chaos and Silence Ratio' (C/SR) for Language was 3, which is less than that of Mathematics (5.3) and Environmental Studies (5).

'Teacher-Pupil Activity Ratio' (TPAR) ranged from 140 to 242 for three subjects. TPAR for Language was found to be 140.50, whereas for Mathematics it was 179.48 and for Environmental Studies the ratio was 242.45.

'Indirect/Direct Ratio' (I/DR) is the ratio of indirect behaviour of pupil plus teacher taken together, whereas direct behaviour is combined direct activity of pupil and teacher. The ratio was found to be highest (15.18) in Environmental Studies classes. The Language ratio was 10.35 which is higher than that of Mathematics i.e., 4.94.

The 'Pupil-Pupil Interaction Ratio' (PPIR) was 4.69 for Language, which is lowest as compared to that of Mathematics ratio i.e., 4.74 and Environmental Studies 6.14.

The range of 'Disapproval/Non-compliance Ratio' (DNCR) is 92 to 176. In every 100 events Language has 92.59 percent disapproval, whereas Mathematics has 102.77 and Environmental Studies has 176.19.

'Direct/Compliance Ratio' (D/CR) ranged from 10 to 20. For Language it was found to be 10.95, whereas the ratio was 20.34 percentage for Mathematics and 15.07 for Environmental Studies.

The percentage for 'Steady State Ratio' (SSR) ranged from 91 to 93 for three subjects. The variation of this ratio for three subjects is very less. Language classes show 93.1 percent of steady states, whereas Mathematics has 92.3 and Environmental Studies has 91.7 percent of sustenance of the same activity. The ratios have been depicted through Bar Diagrams: 4.25(f)-1, 2, 3.
Graph Showing Bar Diagram for Category Ratios of Classroom Interactions: Subjectwise
Graph Showing Bar Diagram for Category Ratios of Classroom Interactions: Subjectwise
Graph Showing Bar Diagram for Category Ratios of Classroom Interactions: Subjectwise
Analysis & Interpretation

An Overview

From the above analyses it may be concluded that in general:

- Teacher activity seems to be a popular phenomenon; almost two times of students activity for all the three classroom interactions in Language, Mathematics & Environmental Studies.

- Permissiveness as depicted through TPAR was highest in Environmental Studies class, Second highest in Mathematics and lowest in Language classes.

- Democratic behaviour which is implied through the use of indirect behaviour was higher for Environmental Studies and lowest for Language classes and falling between the two was Mathematics.

- Interaction among the pupils was not much in the Language and Mathematics classes but it was higher in Environmental Studies classes but not very high.

- Disapproval and Non-compliance events were observed maximum in Environmental Studies classes and lowest in Language classes.

- Directions and Compliance to them was highest in Mathematics class and lowest in Language classes.

B.2: Grade-wise Differences in Classroom Interaction Category Proportions in Grades-I, II, & III

For each grade observation of class-room interactions of 17, 19 & 18 teachers for grades-I, II & III respectively were pooled onto one matrix and then a milage matrix for grades-I, II & III were prepared separately. Appendix: 2(vi)-d, e, f have recorded the grade-wise milage matrices. The interpretive nine ratios were computed for each milage matrix that was based on pooled observations of 17, 19, 18 teachers for grades-I II & III and each teacher was observed at least twice or thrice. The ratios have been recorded in the table no. 4.26 below:

**Table No. 4.26**

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Category</th>
<th>Grade-I</th>
<th>Grade-II</th>
<th>Grade-III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TAR</td>
<td>66.3</td>
<td>60.5</td>
<td>60.9</td>
</tr>
<tr>
<td>2.</td>
<td>PAR</td>
<td>36</td>
<td>33.20</td>
<td>30.10</td>
</tr>
<tr>
<td>3.</td>
<td>C/SR</td>
<td>3.6</td>
<td>6.3</td>
<td>3.10</td>
</tr>
<tr>
<td>4.</td>
<td>TPAR</td>
<td>191.13</td>
<td>187.84</td>
<td>148.93</td>
</tr>
<tr>
<td>5.</td>
<td>IDR</td>
<td>8.28</td>
<td>6.87</td>
<td>6.59</td>
</tr>
<tr>
<td>6.</td>
<td>PPIR</td>
<td>8.63</td>
<td>6.32</td>
<td>3.05</td>
</tr>
<tr>
<td>7.</td>
<td>DNCR</td>
<td>261.53</td>
<td>84.37</td>
<td>120.68</td>
</tr>
<tr>
<td>8.</td>
<td>DCR</td>
<td>18.05</td>
<td>2</td>
<td>12.99</td>
</tr>
<tr>
<td>9.</td>
<td>SSR</td>
<td>96.6</td>
<td>88.8</td>
<td>94.4</td>
</tr>
</tbody>
</table>
The table no. 4.26, indicates that the 'Teacher Activity Ratio' (TAR) ranged from 60 to 66 or grades-I, II & III. For every 100 activities, 66.3 percent activities were performed by teacher of grade-I, 60.5 percent for grade-II and 60.9 percent for grade-III respectively.

'Pupil-Activity Ratio' (PAR) when compared for three grades, suggested that grade-I has highest ratio of 36 percent, whereas grade-II has 33.20 percent and grade-III has 30.10 percent respectively. Pupil activity in the three grades did not vary much.

'Chaos/Silence Ratio' (C/SR) varied from 3 to 6 percent for the three grades. Grade-I had 3.6 percent of chaos/silence out of 100 activities occurring in the class, whereas 6.3 percent for grade-I and 3.10 percent for grade-III, respectively were recorded events of chaos/silence out of 100 activities of the class.

'Teacher-Pupil Activity Ratio' (TPAR) was found to be highest for grade-I, as compared to grade-II and grade-III. It suggests that for every one hundred activities of pupil, teacher activity was about 191.13 in grade-I, 187.84 in grade-II and 148.93 in grade-III respectively.

'Indirect/Direct Ratio' (I/DR) is the ratio of indirect behaviour of pupil plus teacher taken together, whereas direct behaviour is combined direct activity of pupil and teacher. Higher ratio i.e., 8.23 was observed for grade-I, whereas it was 6.87 for grade-II and 6.59 for grade-III.

'Pupil-Pupil Interaction Ratio' (PPIR) was higher for grade-I i.e., 8.63 percent, whereas it was 6.32 percent in grade-II and 3.05 percent in grade-III, out of 100 events of pupil behaviour/activity, excluding chaos and silence.

The percentage for 'Disapproval/Non-Compliance Ratio' (D/NCR) in grade-I was found to be 261.53 percent which was higher than that of grade-II i.e., 84.37 percent and 120.68 percent for grade-III.

'Direction/Compliance Ratio' (D/CR) for 100 activities/instances of direction/compliance were 18.05 percent for grade-I, 2 percent for grade-II and 12.99 percent for grade-III.

'Steady State Ratio' (SSR) which indicates persistence of an activity for small intervals was 96.6 percent for grade-I, for grade-II it was 88.8 percent, whereas it was 94.4 percent for grade-III.

All the above mentioned ratios have been represented through Bar Diagrams vide [Fig. 4.26(f)-i, 2, 3].
Graph Showing Bar Diagram for Category Ratios of Classroom Interactions: Gradewise
Graph Showing Bar Diagram for Category Ratios of Classroom Interactions: Gradewise
Graph Showing Bar Diagram for Category Ratios of Classroom Interactions: Gradewise
Analysis & Interpretation

An Overview

Grade-wise analysis of classroom interaction led to the following summary conclusions:

- Teacher activity was almost two times as compared to student activity in almost all the three grades-I, II and III but it was almost in the same range.
- Reciprocal teacher-student activities and corresponding permissiveness was highest in grade-I and it decreased with grades level, II and III.
- Indirect behaviour events were same in all the three grades.
- Pupil-Pupil Interaction was highest among grade-I students and lowest among grade-III students.
- Disapproval/Non-Compliance was too high for grade-I, second highest for grade-III and minimum for grade-II.
- Direction/Compliance events were minimum for grade-II and highest for grade-I.

B.3: Identification of Democratic/Participative and Authoritarian/Non-Participative Classes in School under Investigation

On a thorough examination of the matrices, there appeared a vast divergence in different patterns of activities in different classes. Some classes were full of activities with adequate mutual interaction and enough free play. Some other classes were dominated by more of structured activities, under a well-seated decorum, discipline and fear-psychosis. But majority of the classes were not different in the conventionally used activities and behavioural categories. These classes showed a marked divergence not on type of activities performed in the class but also on the focuses, emphases and domination within a particular climate of the class.

In some classes, some behaviours were markedly figuring up prominently but in other classes these categories were operating at depressed level. The picture gathered on the variance of individual category and their emphases did not give rise to any meaningful interpretation. However, the clusters of activities with their varied emphases, tended to indicate to a specific type of climate and style of management which had a lot in common with the thematic construct of democracy. One distinct climate, which appeared to figure up may be vaguely defined as Democratic/Participative climate another, was Authoritarian/Non-Participative climate.

In order to make theoretically distinct construct of two types of climates, it was decided that the category specifications that correspond with Democratic/Participative classes may be
placed under one gestalt and those corresponding with Authoritarian/Non-Participative
classes with the other. These criterion categories were divided into two groups:

(i) First group consisted of categories where appearance of a type of activity was
indicative of a typical climate e.g., appearance of categories 1 and 5 for
Democratic and Appearance of category 13 for Authoritarian class climate.

(ii) Second group consisted of those categories which form a continuum. One arm
of the continuum is indicative of Democratic/Participative climate and the other
arm of the continuum is indicative of Authoritarian/Non-Participative class
climate. These criterion categories are 4, 6, 9, 15 and 19.

A thorough review of the theme of different categories led to two distinct constructs of
class climates i.e.:

(a) Democratic/Participative Class.
(b) Authoritarian/Non-Participative Class.

These two types of class climates were identified through the following criteria:

- **Democratic/Participative Class Climate consisted of:**
  - Category-1: Appearance of group activity.
  - Category-5: Appearance of individual attention.
  - Category-4: High level of acceptance of child behaviour.
  - Category-6: Low level of disapproval.
  - Category-9: High level of assisting in self-discipline.
  - Category-15: High level of free play.
  - Category-19: High level of mutual interaction.

Contrary to the above,

- **Authoritarian/Non-Participative Class Climate consisted of:**
  - Category-13: Appearance of attending to teacher.
  - Category-4: Low level of acceptance of child behaviour.
  - Category-6: High level of disapproval.
  - Category-9: Low level of assisting in self-discipline.
  - Category-15: Low level of free play.
  - Category-19: Low level of mutual interaction.

As mentioned above a seven-fold criterion for identifying Democratic/Participative
class climate and six fold criterion for identifying Authoritarian/Non-Participative class climate
was developed. It can be seen from the statement that out of ‘class-climate criterion
categories’, codes 4, 6, 9, 15, and 19 were identified to be common for both the climates and
identification was made on the basis of high or low frequency on these activities.
Appearance of categories 1 and 5 was a typical characteristic of Democratic/Participative class climate and appearance of poor attention to teacher by the child, (Category -13) was the distinct characteristics of Authoritarian/Non-Participative classes.

Based upon the constructs mentioned above each one of the six classes for each subject of English, Mathematics and Environmental Studies (18 in all) were ranked on each one of the criterion categories and were marked as clearly falling into one or the other category (high or low) or sharing some components (average). Identification marks of a classes based on ‘category totals’ were made separately for the three subjects (Language, Mathematics and Environmental Studies). The ranking whether a class is high or low on a specific category was based upon 25% upper and lower category totals. Those classes where category totals fell within the upper 25% were marked as high and where it fell within the first quartile i.e., bottom 25% were marked as low. Rank categorisation of grades-I, II, & III, each for Language, Mathematics and Environmental Studies, have been presented in table nos.4.27, 4.28 & 4.29.
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$S_1 L^1$ = School 1, Grade I, Language  
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### Table No. 4.28
Identification of Democratic/Participative and Authoritarian/Non-Participative Classes for Mathematics

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**Legend**

- $S_1M^1$ = School 1, Grade I, Mathematics
- $S_1M^2$ = School 1, Grade II, Mathematics
- $S_1M^3$ = School 1, Grade III, Mathematics
- $S_2M^1$ = School 2, Grade I, Mathematics
- $S_2M^2$ = School 2, Grade II, Mathematics
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### Table No. 4.29
Identification of Democratic/Participative and Authoritarian/Non-Participative Classes for Environmental Studies

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$S_1 E^I$ = School 1, Grade I, Environmental Studies  
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$S_1 E^{III}$ = School 1, Grade III, Environmental Studies  
$S_2 E^I$ = School 2, Grade I, Environmental Studies  
$S_2 E^{II}$ = School 2, Grade II, Environmental Studies  
$S_2 E^{III}$ = School 2, Grade III, Environmental Studies  
- = No-rating possible

182
It can be seen that out of 18 classes, 2 classes (top 25%) with higher ranks on criterion category totals were categorised as high and 2 classes having bottom two ranks on criterion category totals were categorised as low and those falling between the two groups were categorised as average. This procedure was adopted for each of the eight criterion categories separately, for each grade, each school and each subject.

The ranks were then pooled up and a single category identification of DP, A and ANP were assigned to each class. Identification made 'DP' (Democratic/Participative) was assigned to that class which scored more than 60 percent 'H' ranks and those classes which scored 60 percent 'L' ranks were assigned with an identification mark 'ANP' (Authoritarian/Non-Participative). Other classes were left as classes having common component with identification mark 'A' (Average).

Based upon this procedure 4 out of 18 classes were clearly identified as Democratic/Participative and 6 were identified as Authoritarian/Non-Participative classes. Rest of 8 classes were classified as average traditional groups. The school-wise, grade-wise, subject-wise classification into Democratic/Participative (DP) and Authoritarian/Non-Participative (ANP) have been given in the table no. 4.30 below:

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<th>Class Climate</th>
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<td>ANP, AV, ANP</td>
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The Democratic/Participative class were identified to be:

\[ \begin{align*}
S_{1L}^a &= \text{School 1, Grade II, Language;} \\
S_{1E}^a &= \text{School 1, Grade II, Environmental Studies;} \\
S_{2E}^a &= \text{School 2, Grade I, Environmental Studies;} \\
S_{2M}^a &= \text{School 2, Grade II, Mathematics;} \\
\end{align*} \]
and Authoritarian/Non-Participative class were identified to be:

- $S_1 M^i$ = School 1, Grade II, Mathematics;
- $S_1 L^{iii}$ = School 1, Grade III, Language;
- $S_1 M^{iii}$ = School 1, Grade III, Mathematics;
- $S_2 M^i$ = School 2, Grade I, Mathematics;
- $S_2 L^{iii}$ = School 2, Grade III, Language;
- $S_2 E^{iii}$ = School 2, Grade III, Environmental Studies.
PART-C
COGNITIVE SKILLS
COGNITIVE SKILLS IN RELATION TO PARENTAL INVOLVEMENT AND SCHOOL INTERVENTION (CLASS CLIMATE)

After having identified Democratic/Participative and Authoritarian/Non-Participative classes, children belonging to high Parental Involvement group and low Parental Involvement group were segregated. The impact of these two variables were studied through 2 x 2 analysis of variance.

For one ANOVA, achievement on cognitive skills was dependent variable and Parental Involvement and Class Climate (School Intervention) were two independent variables each of which was studied at two levels viz:

- High and Low Parental Involvement
- Democratic/Participative and Authoritarian/Non-Participative Class Climate.

For the second ANOVA the dependent variable was performance on social skills. Parental Involvement and Class Climate were two independent variables, each studied at two levels viz:

- High and Low Parental Involvement
- Democratic/Participative and Authoritarian/Non-Participative Class Climate.

In each case a 2 x 2 analysis of variance was employed.

The analysis on Cognitive Skills were carried out at two stages

- Cognitive Skills (Global scores in English, Mathematics and Environmental Studies).
- Cognitive Skills (Individual 24 skills related with English, Mathematics and Environmental Studies).

C.1: Impact of Parental Involvement and School Intervention on Cognitive Skills (Global Scores)

The students of the high involved parents and low involved parents were selected from the Democratic/Participative and Authoritarian/Non-Participative Class Climate. The global scores of these students on nine cognitive skills in English, five in Mathematics and ten cognitive skills in Environmental Studies were tabulated to analyse the impact of parental involvement and school intervention. A 2 x 2 ANOVA was employed to test the following hypotheses:

*Ho.25: High and Low Parental Involvement yield equal Levels of Cognitive Skills in

(i) Language (English),
(ii) Mathematics, and
(iii) Environmental Studies, for children of grades-I, II, and III.*
Ho.26: Democratic/Participative and Authoritarian/Non-Participative Class Climate yield equal Levels of Cognitive Skills in
(i) Language (English),
(ii) Mathematics, and
(iii) Environmental Studies, for grades-I, II, and III Children.

Ho.27: The Children Studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate and belonging to High and Low Involved Parents are not different on Cognitive Skills In
(i) Language (English),
(ii) Mathematics, and
(iii) Environmental Studies

C.1.1: Analysis of Variance for Scores on Cognitive Skills in English

The global scores of the identified groups were subjected to 2 x 2 analysis of variance. The mean, sum of squares and F-ratios were computed for the two main effects of parental involvement and class climate (school intervention) and for their interaction effect. The summary of 2 x 2 ANOVA has been presented below in the table no. 4.31.

Table No. 4.31
Summary of Analysis of Variance on Global Scores of Cognitive Skills (Language) in Relation to Parental Involvement and Class Climate

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MSS</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A): Parental Involvement</td>
<td>12.4482</td>
<td>1</td>
<td>12.4482</td>
<td>0.7141</td>
</tr>
<tr>
<td>(B): Class Climate</td>
<td>0.9648</td>
<td>1</td>
<td>0.9648</td>
<td>0.0553</td>
</tr>
<tr>
<td>(AxB): Interaction Effect</td>
<td>123.7959</td>
<td>1</td>
<td>123.7959</td>
<td>7.1016**</td>
</tr>
<tr>
<td>Error</td>
<td>1220.254</td>
<td>70</td>
<td>17.4322</td>
<td></td>
</tr>
</tbody>
</table>

** Significant at the 0.01 level of confidence

Main Effects:

It may be observed from the above table no. 4.31, that for the cognitive skills in the subject of English, the F-ratio for the difference in means of children of high and low Parental Involvement (A), was not found significant even at the 0.05 level of confidence. It indicates that the two means were not statistically different from each other beyond the contribution of chance. Therefore, the null hypothesis [Ho.25(i)] was not rejected at the specified level. It may be concluded that high and low parental involvement yielded equal scores of students on cognitive skills in English.
For the main effect of the variable Class Climate (B), the F-ratio for the difference in means of children studying in Democratic/Participative and Authoritarian/Non-Participative class climate, was not found significant even at the 0.05 level of confidence. It suggested that the two means were not different beyond the contribution of chance. The null hypothesis of equality viz; Ho 26(i), therefore, was not rejected. It may be inferred that two groups of children due to types of class climate viz.; Democratic/Participative and Authoritarian/Non-Participative, showed almost equal achievement on cognitive skills in English.

**Interaction Effect:**

It may also be seen from the above table no. 4.31 that the F-ratio for the difference in means for the Interaction of Parental Involvement and Class Climate was found to be significant at the 0.01 level of confidence. It indicated that the two means were different beyond the contribution of chance. Thus, the null hypothesis [Ho.27 (i)] was rejected at the specified level. It may be concluded that both the variables do not operate independent of each other and that their interaction with each other yielded different means on cognitive skills in English.

A further probe was done through graphic presentation and was further confirmed by t-test. Fig. 4.32(f) shows significant interaction between the two variables for cognitive skills in English.
To probe further, the F-ratio was followed by t-test. The t-ratios were computed for different combination pairs and have been recorded in the following table no. 4.32.

Table No. 4.32

t-ratios for Different Combination Pairs for the Interaction of Parental Involvement and Class Climate for Cognitive Skills in English

<table>
<thead>
<tr>
<th>P. Involvement/ Class Climate</th>
<th>HPI /DP M=40.84</th>
<th>HPI /ANP M=52.95</th>
<th>LPI /DP M=48.44</th>
<th>LPI /ANP M=38.30</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPI /DP</td>
<td>-</td>
<td>8.29**</td>
<td>4.22**</td>
<td>1.90</td>
</tr>
<tr>
<td>HPI /ANP</td>
<td>-</td>
<td>-</td>
<td>2.71*</td>
<td>8.78**</td>
</tr>
<tr>
<td>LPI /DP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6.38**</td>
</tr>
<tr>
<td>LPI /ANP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence
** Significant at the 0.01 level of confidence

The above table no. 4.32, reveals that out of six t-ratios, four t-ratios corresponding to the difference in means of:

- HPI/DP and HPI/ANP
- HPI/DP and LPI/DP
- HPI/ANP and LIP/ANP
- HPI/DP and LPI/ANP,

were found significant at the 0.01 level of confidence, which indicated that the two groups were different beyond the contribution of chance. An examination of means of the two groups corresponding to the four t-ratios suggested that:

- With High Parental Involvement, Authoritarian/Non-Participative Class Climate yielded higher mean scores on skills in English than Democratic/Participative class climate.
- With Democratic/Participative class climate, Low Parental Involvement yielded higher mean scores in English skills as compared to High Parental Involvement.
- With Authoritarian/Non-Participative class climate, high Parental Involvement yielded higher mean scores on skills in English than Low Parental Involvement.
- High Parental Involvement, Democratic/Participative class climate yielded higher mean scores on skills in Language than the Low Parental Involvement, Authoritarian/Non-Participative class climate.
- t-ratio for the difference in means of the two groups of High Parental Involvement, Authoritarian/Non-Participative and Low Parental Involvement, Democratic/Participative was found marginally significant at the 0.05 level of confidence. An
examination of the means of the two groups suggested that Low Parental Involvement, Democratic/Participative class climate resulted into marginally higher mean scores in English than High Parental Involvement, Authoritarian/Non-Participative class climate.

- The t-ratio corresponding to High Parental Involvement, Democratic/Participative class climate and Low Parental Involvement, Authoritarian/Non-Participative groups was not found significant and the tow groups scored equal on skills in English.

C.1.2: Analysis of Variance for Scores on Cognitive Skills in Mathematics

A similar 2 x 2 ANOVA was employed to analyse the scores of children on Mathematical Cognitive Skills.

Table No. 4.33

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MSS</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A): Parental Involvement</td>
<td>84.8574</td>
<td>1</td>
<td>84.8574</td>
<td>4.6597*</td>
</tr>
<tr>
<td>(B): Class Climate</td>
<td>0.8320</td>
<td>1</td>
<td>0.8320</td>
<td>0.0457</td>
</tr>
<tr>
<td>(AxB): Interaction Effect</td>
<td>26.2031</td>
<td>1</td>
<td>26.2031</td>
<td>1.4389</td>
</tr>
<tr>
<td>Error</td>
<td>1493.2938</td>
<td>82</td>
<td>18.2109</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence
** Significant at the 0.01 level of confidence

Main Effects:

It may be seen from the table no. 4.33, that for the subject of Mathematics, the F-ratio for difference in means of children of high and low Parental Involvement (A) groups was found significant at the 0.05 level of confidence. It suggested that the two means were different beyond the contribution of chance. Thus, the null hypothesis [Ho. 25 (ii)] was rejected at the specified level. An examination of the means of the two groups indicated that children with high parental involvement yielded higher scores on Mathematical cognitive skills (M=60.21) as compared to children of low parental involvement (M=51.003).

For the main effect of the variable Class Climate (B), the F-ratio for the difference in mean of Democratic/Participative and Authoritarian/Non-Participative class climate was not found significant even at the 0.05 level of confidence. It suggested that the two means were not different beyond the contribution of chance. Thus, the null hypothesis [Ho 26 (ii)] of equality, was not rejected. It may be inferred that the two types of class climate resulted into almost equal achievement of students in Mathematical Cognitive Skills.
Interaction Effect:

It may also be seen from the above table no. 4.33, that the F-ratio for the difference in means for the interaction of parental involvement and class climate was not found to be significant even at the 0.05 level of confidence. Therefore, the two groups were not different beyond chance factor. The null hypothesis [Ho. 27 (ii)] was not rejected at the specified level. It may be concluded that there was no interaction effect between parental involvement and class climate for Mathematical Cognitive Skills.

C.1.3: Analysis of Variance for Scores on Cognitive Skills in EVS

A $2 \times 2$ ANOVA was employed on scores on cognitive skills in EVS corresponding to high and low parental involvement and Democratic/Participative and Authoritarian/Non-Participative class climates, the summary of which has been presented below:

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MSS</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A): Parental Involvement</td>
<td>6.4390</td>
<td>1</td>
<td>6.4390</td>
<td>0.4083</td>
</tr>
<tr>
<td>(B): Class Climate</td>
<td>1.6958</td>
<td>1</td>
<td>1.6958</td>
<td>0.1075</td>
</tr>
<tr>
<td>(AxB): Interaction Effect</td>
<td>0.0028</td>
<td>1</td>
<td>0.0020</td>
<td>0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>1025.0955</td>
<td>65</td>
<td>15.7707</td>
<td>-</td>
</tr>
</tbody>
</table>

Main Effects:

The above table no. 4.34, depicts that for the global scores of children on cognitive skills in the subject of Environmental Studies, the F-ratio for the difference in means of children of high and low Parental Involvement (A), was not found to be significant even at the 0.05 level of confidence. Thus, the null hypothesis [Ho. 25 (iii)] of equality was not rejected at the specified level. It may be concluded that parental involvement did not yield different levels of cognitive skills in Environmental Studies.

For the main effect of the variable Class Climate (B), the F-ratio for the difference in means of children studying in Democratic/Participative and Authoritarian/Non-Participative class climate, was not found significant even at the 0.05 level of confidence. Thus, the null hypothesis [Ho.26(iii)] of equality was not rejected. It may be inferred that two types of class climate resulted into almost equal achievement of students on cognitive skills in Environmental Studies.
Analysis & Interpretation

**Interaction Effect:**

It may also be seen from the above table that the F-ratio for the difference in means for the interaction of Parental Involvement and Class Climate was not found to be significant even at the 0.05 level of confidence. Thus, the null hypothesis [Ho.27(iii)] was not rejected at the specified level. It may be concluded that there was no interaction effect of both the variables on cognitive skills in Environmental Studies.

After having studied the impact of parental involvement and class climate on achievement levels of cognitive skills in English, Mathematics, and Environmental Studies (Global Scores), the impact was examined on individual cognitive skills related to these subjects.

A 2 x 2 ANOVA was employed separately for nine cognitive skills in English, four cognitive skills in Mathematics and five cognitive skills in Environmental Studies.

**C.2.1: Impact of Parental Involvement and Class Climate on Individual Cognitive Skills in English**

A separate 2x2 ANOVA was employed on scores for each of the nine skills in English viz; Listening, Speaking, Reading, Writing, Comprehension, Use of Functional Grammar, Self-Learning, Language Use and Vocabulary Control.

For individual skill-wise analysis, test items pertaining to each skill were identified and the scores of each child were computed on the specified skill. Since number of test items for each skill was not the same hence the scores on each individual skill were converted onto a percentage score, so that comparability could be ensured.

Following hypotheses were tested through this analysis:

*Ho.28: High and Low Parental Involvement yield equal Levels of Cognitive Skills in English:*

(i) Listening,
(ii) Speaking,
(iii) Reading,
(iv) Writing,
(v) Comprehension,
(vi) Use of Functional Grammar,
(vii) Self-Learning,
(viii) Language Use, and
(ix) Vocabulary Control, for grades I, II & III Children.
Ho.29: Class Climate, Democratic/Participative and Authoritarian/Non-Participative yield equal Levels of Cognitive Skills in English:

(i) Listening,
(ii) Speaking,
(iii) Reading,
(iv) Writing,
(v) Comprehension,
(vi) Use of Functional Grammar,
(vii) Self-Learning,
(viii) Language Use, and
(ix) Vocabulary Control, for grades-I, II & III Children.

Ho.30: Grades-I, II & III Children Studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate and belonging to High and Low Involved Parents are not different on Cognitive Skills in:

(i) Listening,
(ii) Speaking,
(iii) Reading,
(iv) Writing,
(v) Comprehension,
(vi) Use of Functional Grammar,
(vii) Self-Learning,
(viii) Language Use, and
(ix) Vocabulary Control.

The means, MSS and F-ratios were computed for the two main effects and interaction effect separately for each of the individual nine skills in English. The F-ratios and the means corresponding to each one of them have been presented in the following table no. 4.35.
Table No. 4.35

Summary of Analysis of Variance on Individual Cognitive Skills in English

<table>
<thead>
<tr>
<th>Cognitive Skills In English</th>
<th>Main Effect</th>
<th>Interaction Effect (A x B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A) Parental Involvement</td>
<td>(B) Class Climate</td>
</tr>
<tr>
<td>Listening</td>
<td>HPI = 29.19, DP = 27.77</td>
<td>F = 0.1720</td>
</tr>
<tr>
<td></td>
<td>LPI = 20.86, ANP = 22.30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F = 4.0962*</td>
<td>F = 1.7601</td>
</tr>
<tr>
<td>Speaking</td>
<td>HPI = 40.54, DP = 27.77</td>
<td>F = 0.0482</td>
</tr>
<tr>
<td></td>
<td>LPI = 38.06, ANP = 50.83</td>
<td>F = 4.1591*</td>
</tr>
<tr>
<td></td>
<td>F = 0.1345</td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>HPI = 53.49, DP = 20.09</td>
<td>F = 1.7834</td>
</tr>
<tr>
<td></td>
<td>LPI = 43.10, ANP = 76.52</td>
<td>F = 52.7220**</td>
</tr>
<tr>
<td></td>
<td>F = 1.4377</td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td>HPI = 44.23, DP = 41.46</td>
<td>F = 0.2497</td>
</tr>
<tr>
<td></td>
<td>LPI = 40.89, ANP = 43.67</td>
<td>F = 0.1096</td>
</tr>
<tr>
<td></td>
<td>F = 1.9444</td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td>HPI = 57.59, DP = 40.10</td>
<td>F = 0.3286</td>
</tr>
<tr>
<td></td>
<td>LPI = 53.97, ANP = 71.47</td>
<td>F = 24.7842**</td>
</tr>
<tr>
<td></td>
<td>F = 0.3348</td>
<td></td>
</tr>
<tr>
<td>Use of Functional Grammar</td>
<td>HPI = 55.94, DP = 61.10</td>
<td>F = 1.2182</td>
</tr>
<tr>
<td></td>
<td>LPI = 49.19, ANP = 43.94</td>
<td>F = 7.9529**</td>
</tr>
<tr>
<td></td>
<td>F = 8.5701**</td>
<td></td>
</tr>
<tr>
<td>Self Learning</td>
<td>HPI = 21.41, DP = 48.51</td>
<td>F = 2.9287</td>
</tr>
<tr>
<td></td>
<td>LPI = 32.86, ANP = 5.75</td>
<td>F = 40.9255**</td>
</tr>
<tr>
<td></td>
<td>F = 4.2304*</td>
<td></td>
</tr>
<tr>
<td>Language Usage</td>
<td>HPI = 50.19, DP = 65.79</td>
<td>F = 0.0612</td>
</tr>
<tr>
<td></td>
<td>LPI = 47.80, ANP = 32.19</td>
<td>F = 12.1558**</td>
</tr>
<tr>
<td></td>
<td>F = 0.1454</td>
<td></td>
</tr>
<tr>
<td>Vocabulary Control</td>
<td>HPI = 48.33, DP = 9.83</td>
<td>F = 0.7429</td>
</tr>
<tr>
<td></td>
<td>LPI = 41.94, ANP = 80.45</td>
<td>F = 90.6169**</td>
</tr>
<tr>
<td></td>
<td>F = 3.8272</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence
** Significant at the 0.01 level of confidence
• Skill in Listening

It may be observed from the table no. 4.35, that for scores of English Skill in ‘Listening’, the F-ratio for the difference in means for the main effect of parental involvement was found to be significant at the 0.05 level of confidence. The null hypothesis [Ho. 28(i)] was rejected at the specified level. An examination of means of the two groups of children with HPI and LPI indicated that HPI children achieved higher scores on cognitive skill in Listening.

None of the F-ratios for the main effect of ‘Class Climate’ and interaction effect between the two variables, were found significant even at the 0.05 level of confidence. Hence, null hypotheses [Ho. 29(i) and 30 (i)] were rejected.

It may be concluded that:
> High Parental Involvement leads to higher level of skill in Listening for children of grades-I, II & III.
> Democratic/Participative and Authoritarian/Non-Participative class climate yielded equal levels of skills in Listening.
> Parental Involvement and Class Climate operate independent of each other for skill in Listening.

• Skill in Speaking

It may be seen from the table no. 4.35, that none of the F-ratios for the main effects of parental involvement, and interaction effect of parental involvement and class climate were found significant even at the 0.05 level of confidence. The difference, if any may be ascribed to chance factor. Thus, the null hypotheses [Ho 28(ii) and 30(ii)] do not stand rejected.

However, F-ratio for the difference in means of children studying in Democratic/Participative and Authoritarian/Non-Participative class climate was found significant at the 0.05 level of confidence. It suggested that the two groups were different beyond chance. The null hypothesis [Ho. 29(ii)] was rejected at the specified level of confidence. An examination of the means of the two groups suggested that Authoritarian/Non-Participative class climate yielded higher levels of skill in Speaking as compared to Democratic/Participative class climate.

It may be concluded that:
> Children belonging to high and low Parental Involvement groups were not different on skill in Speaking.
> Authoritarian/Non-Participative class climate yielded higher levels of skill in Speaking as compared to Democratic/Participative class.
> Parental Involvement and Class Climate operate independent of each other with regard to skill in Speaking.
• Skill in Reading

It may be observed from the table no. 4.35, that the F-ratio for the difference in means of high and low Parental Involvement groups on Reading skill was not found significant even at the 0.05 level of confidence. The null hypothesis [Ho 28(iii)] therefore was not rejected at the specified level. It may be inferred that the difference in parental involvement did not affect the Reading skill of children.

The F-ratio for the difference in means of Democratic/Participative and Authoritarian/Non-Participative class climate on skill in Reading was found to be significant at the 0.01 level of confidence. The null hypothesis [Ho. 29(iii)] was therefore rejected. An observation of the respective means of the two groups suggested that the Authoritarian/Non-Participative class climate yielded higher levels of skill in Reading than the Democratic/Participative class climate.

The F-ratio for the interaction between Parental Involvement and Class Climate in respect of skill in 'Reading' was not found to be significant even at the 0.05 level of confidence. Thus, the null hypothesis [Ho. 29(iii)] was not rejected at the specified level of confidence. It indicated that the two variables operated, independently with regard to skill in Reading.

It may be concluded that:

- High and Low Parental Involvement yielded equal levels of skill in Reading.
- Children studying in Authoritarian/Non-Participative Class Climate scored higher on skill in Reading as compared to those of Democratic/Participative Class Climate.
- Parental Involvement and Class Climate do not interact to yield different levels of skill in Reading.

• Skill in Writing

It may be seen from the table no. 4.35, that none of the F-ratios for the main effects of Parental Involvement and Class Climate and their interaction effect were found to be significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 28(iv), 29(iv) & 30(iv)] stand rejected,

It may be concluded that:

- Parental Involvement yielded equal levels of skill in Writing for children of grades-I, II & III.
- The children of grades-I, II & III studying in Authoritarian/Non-Participative and Democratic/Participative class climate achieved equal levels of skill in Writing.
- For skill in Writing, Parental Involvement and Class Climate of grades-I, II & III seem to operate independent of each other.
• **Skill In Comprehension**

The summary of ANOVA on skill in 'Comprehension' as revealed in table no. 4.35, indicated that the F-ratio for the difference in means of two groups of children belonging to high and low involved parents was not found significant at the 0.05 level of confidence. The F-ratio for the interaction effect, too, was not found significant, suggesting that the two variables are independent of each other with regard to skill in Comprehension. The null hypotheses [Ho. 28(v) and Ho 30(v)] were not rejected.

The F-ratio for the main effect of class climate was found significant at the 0.01 level of confidence suggesting that the two groups of children studying in Democratic/Participative and Authoritarian/Non-Participative were different on skill of Comprehension. The null hypotheses [Ho. 29(v)] was therefore rejected. An examination of means of the two groups indicated that children studying in Authoritarian/Non-Participative class climate were superior on skill in Comprehension as compared to their counterparts in Democratic/Participative class climate.

It may be concluded that:

- **High and Low Parental Involvement** were found to achieve equal on skill in Comprehension.
- **Authoritarian/Non-Participative Class Climate** yielded higher achievement scores on skill in Comprehension than the Democratic/Participative Class Climate.
- For skill in Comprehension, no interaction effect was found between Parental Involvement and Class Climate.

• **Skill in Using Functional Grammar**

Table no. 4.35, shows that the F-ratio for the difference in means of high and low parental involvement groups on the 'Use of Functional Grammar' was not found to be significant even at the 0.05 level of confidence. Thus, the null hypothesis [Ho. 28[vi)] could not be rejected at the specified level. It suggested that the observed difference in their means may be ascribed to chance. For all practical purposes the two parental involvement groups would be considered comparable on Use of Functional Grammar.

The F-ratio for the difference in mean scores of children studying in Democratic/Participative and Authoritarian/Non-Participative class climate was found significant at the 0.01 level of confidence. The null hypothesis [Ho. 29[vi)] was therefore, rejected. The observation of their respective means indicated that the Democratic/Participative group scored high on the Use of Functional Grammar as compared to their counterparts in Authoritarian/Non-Participative class climate. It may be concluded that the class climate yielded different levels of skill in Using Functional Grammar for children of grades-I, II & III.

The F-ratio for the interaction effect between variables of Parental Involvement and Class Climate was found to be significant at the 0.01 level of confidence in respect of the
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scores on the *Use of Functional Grammar*. The null hypothesis [Ho. 30 (vi)] was rejected. A further probe into the results was done through graph and t-test.

*Fig. 4.35(f)* depicts graphically the interaction between parental involvement and class climate for skill in *Using Functional Grammar*.

The t-ratios for difference in means of different combination pairs for the interaction effect were computed and have been recorded in the following table no. 4.36.

**Table No. 4.36**

<table>
<thead>
<tr>
<th>P. Involvement/Class Climate</th>
<th>HPI/DP M = 55.61</th>
<th>HPI/ANP M = 56.28</th>
<th>LPI/DP M = 66.78</th>
<th>LPI/ANP M = 31.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPI/DP</td>
<td>-</td>
<td>0.313</td>
<td>4.10**</td>
<td>11.82**</td>
</tr>
<tr>
<td>HPI/ANP</td>
<td>-</td>
<td>-</td>
<td>4.33**</td>
<td>14.33**</td>
</tr>
<tr>
<td>LPI/DP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15.78**</td>
</tr>
<tr>
<td>LPI/ANP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

** Significant at the 0.01 level of confidence

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The table no. 4.36, depicts that out of six t-ratios, five t-ratios corresponding to the difference in means of:

- HPI/DP and LPI/DP
- HPI/DP and LPI/ANP
- HPI/ANP and LPI/DP
- HPI/ANP and LPI/ANP
- LPI/DP and LPI/ANP.

were found significant at the 0.01 level of confidence, which indicated that the two groups were different beyond the contribution of chance. An examination of means of the two groups corresponding to the five t-ratios suggested that:

- High Parental Involvement, Democratic/Participative group yielded higher mean scores than Low Parental Involvement, Authoritarian/Non-Participative Class Climate.
- Low Parental Involvement, Democratic/Participative Class Climate yielded higher scores on *Use of Functional Grammar* than the High Parental Involvement, Authoritarian/Non-Participative Class Climate.
- For Democratic/Participative Class Climate, High Parental Involvement yielded lower mean scores as compared to Low Parental Involvement for skill in *Usage of Functional Grammar*.
- For Authoritarian/Non-Participative Class Climate, High Parental Involvement yielded higher scores on skill of *Using Functional Grammar* as compared to Low Parental Involvement.
- Low Parental Involvement, Democratic/Participative Class Climate group mean scores surpassed that of the Low Parental Involvement, Authoritarian/Non-Participative group.
- t-ratio for the difference in means of the two groups of LPI/DP and LPI/ANP was not found significant even at the 0.05 level of confidence. It suggested that two groups yielded equal mean scores on skill in *Usage of Functional Grammar*.

**Skill in Self-Learning**

The table no. 4.35, depicts that the F-ratio for the difference in means of high and low parental involvement groups on skill in ‘Self-Learning’ was not found significant even at the 0.05 level of confidence. Thus, the null hypotheses [Ho.28(vii)] was not rejected at the specified level of confidence. It may be inferred that the difference in parental involvement does not yield difference of achievement on skill in *Self-Learning*.

The F-ratio for the difference in means of Democratic/Participative and Authoritarian/Non-Participative with regard to skill in *Self-Learning* was found to be significant at the 0.01 level of confidence. The null hypotheses [Ho. 29 (vii)] was therefore rejected. The observation of the respective means of the two groups indicated that Democratic/Participative
class climate yielded higher levels of skill in Self-Learning, than the Authoritarian/Non-Participative Class Climate.

F-ratio for the interaction effect between the variables of Parental Involvement and Class Climate was found to be marginally significant at the 0.05 level of confidence, in respect of scores on the skill of Self-Learning. Thus, the null hypothesis [Ho. 30(vii)] stands rejected at the specified level of confidence.

The results were further probed through graph [Fig. 4.35 (f)-2] and t-ratios.

The t-ratios for different combination of groups were computed and have been presented below:

**Table No. 4.37**
t-ratios for different combination pairs for the interaction of Parental Involvement and Class Climate on Cognitive Skill in Self-Learning

<table>
<thead>
<tr>
<th>P. Involvement/Class Climate</th>
<th>HPI/DP M = 35.92</th>
<th>HPI/ANP M = 6.90</th>
<th>LPI/DP M = 61.10</th>
<th>LPI/ANP M = 4.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPI/DP</td>
<td>-</td>
<td>12.45**</td>
<td>8.69**</td>
<td>14.17**</td>
</tr>
<tr>
<td>HPI/ANP</td>
<td>-</td>
<td>-</td>
<td>20.53**</td>
<td>1.21</td>
</tr>
<tr>
<td>LPI/DP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>22.24**</td>
</tr>
<tr>
<td>LPI/ANP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

** Significant at the 0.01 level of confidence
The above table no. 4.36, shows that out of six t-ratios, five t-ratios corresponding to the difference in means of:

- HPI/DP and HPI/ANP
- HPI/DP and LPI/DP
- HPI/DP and LPI/ANP
- HPI/ANP and LPI/DP
- LPI/DP and LPI/ANP

were found significant at the 0.01 level of confidence, which indicated that two groups were different beyond the contribution of chance. An examination of means of the two groups corresponding to the five t-ratios suggested that:

- For High Parental Involvement, Democratic/Participative Class Climate yielded better results as compared to Authoritarian/Non-Participative Class Climate.
- Low Parental Involvement and Democratic/Participative Class Climate yielded low mean scores than the High Parental Involvement and Democratic/Participate Class Climate.
- High Parental Involvement and Democratic/Participative Class Climate yielded higher mean scores than the Low Parental Involvement and Authoritarian/Non-Participative Class Climate.
- Low Parental Involvement and Democratic/Participative Class Climate resulted into higher mean scores than High Parental Involvement and Authoritarian/Non-Participative Class Climate.
- For Low Parental Involvement, Democratic/Participative Class Climate yielded higher mean scores as compared to Authoritarian/Non-Participative Class Climate.

The t-ratio for the difference in means of the two groups of High Parental Involvement, Authoritarian/Non-Participative and Low Parental Involvement, Authoritarian/Non-Participative Class Climate was not found significant even the 0.05 level of confidence and it suggested that two groups yielded equal mean scores on skill in Self-Learning.

- Skill in Language Usage

It can be seen from the same table no. 4.35, that the F-ratio for difference in means of high and low parental involvement groups on skill in ‘Language Usage’ was not found significant even at the 0.05 level of confidence the null hypothesis [Ho. 28(vii)] was therefore not rejected. It may be concluded that the difference in parental involvement does not result into difference on skill in Language Usage.

The F-ratio for the difference in mean scores of Democratic/Participative and Authoritarian/Non-Participative class climate was found to be significant at the 0.01 level of confidence. The null hypothesis [Ho. 29(vii)] was therefore rejected. An observation of their
respective means indicated that the Democratic/Participative class climate yielded higher levels of skill in *Language Usage* as compared to Authoritarian/Non-Participative class climate.

It may also be seen from the same table no. 4.35, that F-ratio for the interaction effect between parental involvement and class climate was not found to be significant even at the 0.05 level of confidence. The null hypothesis [Ho. 30(viii)] was not rejected. It suggested that the two variables don't interact to affect the skill in *Language Usage*.

It may be concluded that:

- **Parental Involvement**: high and low, yielded equal levels of achievement for skill in *Language Usage*.
- **Democratic/Participative Class Climate** yielded higher scores on skill in *Language Usage* as compared to Authoritarian/Non-Participative Class Climate.
- **Parental Involvement and Class Climate** operate independent of each other in relation to skill in *Language Usage*.

### Skill in Vocabulary Control

F-ratio for the difference in means of Democratic/Participative and Authoritarian/Non-Participative class climate for skill in 'Vocabulary Control' was found to be significant at the 0.01 level of confidence. Thus, the null hypothesis [Ho. 29(ix)] was not rejected at the specified level. An examination of the means due to two class climates suggested that Democratic/Participative class climate resulted into higher achievement levels of children on skill in *Vocabulary Control*.

The F-ratios for the difference in means of the two groups corresponding to the main effect of parental involvement and the interaction effect of class climate and Parental Involvement were not found to be significant even at the 0.05 level of confidence. Hence, hypothesis [Ho.28(ix) and 30 (ix)] were not rejected.

It may be concluded that:

- **Parental Involvement**: high and low, yielded equal levels of achievement for skill in *Vocabulary Control*.
- **Democratic/Participative Class Climate** yielded higher scores on skill in *Vocabulary Control* as compared to Authoritarian/Non-Participative Class Climate.
- **Parental Involvement and Class Climate** operate independent of each other in relation to skill in *Vocabulary Control*.
C.2.2: Impact of Parental Involvement and Class Climate on Individual Cognitive Skills in Mathematics

It may be clarified here that out of the five mathematical skills, analyses were done for four skills viz: Understanding, Applying, Solving and Recognising for grades-I, II & III. As reported in Section A.4.5 also, skill in Estimating was not assessed for grades-I and II children. It is applicable only for grade-III. Unfortunately no class appeared on Democratic/Participative Class Climate in the present study, hence ANOVA corresponding to parental involvement and class climate was not possible on this particular skill even for grade-III. However, analysis corresponding to only parental involvement variable was done for skill in Estimating and has been reported in Section A.4.5 of analysis.

Following hypotheses were tested through this analysis:

**Ho.31:** High and Low Parental Involvement yield equal Levels of Cognitive Skills in Mathematics;
(i) Understanding,
(ii) Applying,
(iii) Solving, and
(iv) Recognising for grades-I, II & III.

**Ho.32:** Class Climate, Democratic/Participative and Authoritarian/Non-Participative yield equal Levels of Cognitive Skills in Mathematics;
(i) Understanding,
(ii) Applying,
(iii) Solving, and
(iv) Recognising for grades-I, II & III.

**Ho.32:** The Children Studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate and belonging to High and Low Involved Parents are not different on Cognitive Skills in Mathematics;
(i) Understanding,
(ii) Applying,
(iii) Solving, and
(iv) Recognising for grades-I, II & III.

A 2 x 2 ANOVA was employed for each of the four skills of Mathematics viz: Understanding, Applying, Solving and Recognising. To measure each skill, the scores of each child were computed on each of the individual skill separately. The scores on individual skill were converted onto percentage scores, so that comparability could be ensured. The means, MSS, & F-ratios were computed for the two main effects and interaction effect. The F-ratios and the means have been presented in the following table no. 4.38.
### Table No.4.38
Summary of Analysis of Variance on Individual Cognitive Skills in Mathematics

<table>
<thead>
<tr>
<th>Cognitive Skills in Maths</th>
<th>Main Effect</th>
<th>Interaction Effect (A x B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A) Parental Involvement</td>
<td>(B) Class Climate</td>
</tr>
<tr>
<td>Understanding</td>
<td>HPI = 74.22</td>
<td>DP = 74.16</td>
</tr>
<tr>
<td></td>
<td>LPI = 67.84</td>
<td>ANP = 67.91</td>
</tr>
<tr>
<td></td>
<td>F = 1.7060</td>
<td>F = 1.6306</td>
</tr>
<tr>
<td>Applying</td>
<td>HPI = 46.99</td>
<td>DP = 41.33</td>
</tr>
<tr>
<td></td>
<td>LPI = 45.21</td>
<td>ANP = 50.87</td>
</tr>
<tr>
<td></td>
<td>F = 0.0790</td>
<td>F = 2.2992</td>
</tr>
<tr>
<td>Solving</td>
<td>HPI = 62.92</td>
<td>DP = 67.31</td>
</tr>
<tr>
<td></td>
<td>LPI = 57.38</td>
<td>ANP = 52.98</td>
</tr>
<tr>
<td></td>
<td>F = 0.6879</td>
<td>F = 4.5849*</td>
</tr>
<tr>
<td>Recognising</td>
<td>HPI = 54.05</td>
<td>DP = 67.31</td>
</tr>
<tr>
<td></td>
<td>LPI = 53.98</td>
<td>ANP = 40.71</td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence.
** Significant at the 0.01 level of confidence.

- **Skill in Understanding**
  
  It may be seen from the table no: 4.38, that none of the F-ratios for the main effects of Parental Involvement and Class Climate and their interaction effect were found to be significant even at the 0.05 level of confidence. It suggested that null hypotheses [Ho. 31(i), 32(i) & 33(i)] do not stand rejected.

  It may be concluded that:
  
  > High and Low Parental Involvement yielded equal levels of skill in Understanding for children of grades-I, II and III.
  > The children of grades-I, II and III studying in Democratic/Participative and Authoritarian/Non-Participative class climate achieved equal levels of skill in Understanding.
  > For skill in Understanding, Parental Involvement and Class Climate of grades-I, II & III seem to operate independent of each other.

- **Skill in Applying**

  The same table no. 4.38, depicts that F-ratios for the main effects of Parental Involvement and Class Climate and their interaction effect were not found to be significant.
children in Democratic/Participative class climate was higher than in the Authoritarian/Non-Participative class climate.

It may be concluded that:

> Children belonging to High and Low Parental Involvement groups were not different on skill in Recognising.
> Democratic/Participative class climate yielded higher level of skill in Recognising as compared to Authoritarian/Non-Participative class climate.
> Parental Involvement and Class Climate operate independent of each other with regard to skill in Recognising.

C.2.3: Impact of Parental Involvement and Class Climate on Individual Cognitive Skills in Environmental Studies

A separate 2 x 2 ANOVA was employed to analyse each of the five cognitive skills in Environmental Studies, viz. Recognising, Exploring, Knowing, Understanding and Sorting, separately for grades-I, II & III children.

Following hypotheses were formulated and were tested through this analysis:

**Ho.34:** High and Low Parental Involvement yield equal Levels of Cognitive Skills in Environmental Studies viz:

(i) Recognising,
(ii) Exploring,
(iii) Knowing,
(iv) Understanding, and
(v) Sorting.

**Ho.35:** Class Climate; Democratic/Participative and Authoritarian/Non-Participative yield equal Levels of Cognitive Skills in Environmental Studies viz:

(i) Recognising,
(ii) Exploring,
(iii) Knowing,
(iv) Understanding, and
(v) Sorting.

**Ho.36:** The Children Studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate and belonging to High and Low Involved Parents are not different on Cognitive Skills viz:

(i) Recognising,
(ii) Exploring,
(iii) Knowing,
(iv) Understanding, and
(v) Sorting.

The means, MSS, and F-ratios were computed for the two main effects and interaction effect. The F-ratios and the means have been presented in the following table no. 4.39.
Table No. 4.39
Summary of Analysis of Variance on Individual Cognitive Skills in EVS

<table>
<thead>
<tr>
<th>Cognitive Skills in EVS</th>
<th>Main Effect</th>
<th>Interaction Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A) Parental Involvement</td>
<td>(B) Class Climate</td>
</tr>
<tr>
<td></td>
<td>HPI = 55.40</td>
<td>DP = 44.54</td>
</tr>
<tr>
<td></td>
<td>LPI = 49.07</td>
<td>ANP = 58.97</td>
</tr>
<tr>
<td></td>
<td>F = 0.7916</td>
<td>F = 3.4958</td>
</tr>
<tr>
<td>Recognising</td>
<td></td>
<td>F = 0.1414</td>
</tr>
<tr>
<td></td>
<td>HPI = 57.40</td>
<td>DP = 72.74</td>
</tr>
<tr>
<td></td>
<td>LPI = 58.08</td>
<td>ANP = 42.79</td>
</tr>
<tr>
<td></td>
<td>F = 0.0052</td>
<td>F = 9.9406**</td>
</tr>
<tr>
<td>Exploring</td>
<td></td>
<td>F = 1.5426</td>
</tr>
<tr>
<td></td>
<td>HPI = 22.22</td>
<td>DP = 35.85</td>
</tr>
<tr>
<td></td>
<td>LPI = 23.54</td>
<td>ANP = 9.91</td>
</tr>
<tr>
<td></td>
<td>F = 0.0540</td>
<td>F = 20.8069**</td>
</tr>
<tr>
<td>Knowing</td>
<td></td>
<td>F = 0.5763</td>
</tr>
<tr>
<td></td>
<td>HPI = 31.28</td>
<td>DP = 31.48</td>
</tr>
<tr>
<td></td>
<td>LPI = 31.07</td>
<td>ANP = 30.88</td>
</tr>
<tr>
<td></td>
<td>F = 0.0021</td>
<td>F = 0.0175</td>
</tr>
<tr>
<td>Understanding</td>
<td></td>
<td>F = 0.0011</td>
</tr>
<tr>
<td></td>
<td>HPI = 27.26</td>
<td>DP = 32.46</td>
</tr>
<tr>
<td></td>
<td>LPI = 29.05</td>
<td>ANP = 23.88</td>
</tr>
<tr>
<td></td>
<td>F = 0.0440</td>
<td>F = 1.0101</td>
</tr>
<tr>
<td>Sorting</td>
<td></td>
<td>F = 0.7254</td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence.
** Significant at the 0.01 level of confidence.

Test items pertaining to each individual skill were identified and the scores of each child were computed on the specified skill.

It may again be emphasized here that all the ten skills identified for EVS were not assessed at grades-I and II level. It was an assumption based on Piaget's work, and utilized by MLL, that out of ten only five skills in EVS were developed for grades-I and II. These skill were: Recognising, Exploring, Knowing, Understanding and Sorting. However, remaining five skills viz: Analysing, Relating, Classifying, Observing and Inferring, develop at the age corresponding to grade-III. Such 2 x 2 ANOVA, as done for other skills could not be employed for remaining five skills since none of the six classes (grade-III) included in the present investigation could appear in the category of Democratic/Participative class climate. Hence ANOVA was not applied for the two variables of Parental Involvement and Class Climate. However, t-ratios for the difference in means of two groups corresponding to Parental
Analysis & Interpretation

Involvement were computed for these skills individually and have been reported in the Section A.4.6 of this chapter.

• Skill in Recognising

The table no. 4.39, reveals that F-ratios for the main effects of Parental Involvement and Class Climate and their interaction effect were not found to be significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 34(i), 35(i) & 36(i)] were not rejected at the specified level of confidence.

It may be concluded that:
- Parental Involvement yielded equal levels of skill in Recognising for children of grades-I, II & III.
- Democratic/Participative and Authoritarian/Non-Participative class climate yielded equal levels of skill in Recognising.
- For skill in Recognising, Parental Involvement and Class Climate of grades-I, II & III, seem to operate independent of each other.

• Skill in Exploring

Table no. 4.39, shows that none of the F-ratios for the main effect of Parental Involvement and their interaction effect were found to be significant even at the 0.05 level of confidence. The difference, if any may be ascribed to chance factor. Thus, the null hypotheses [Ho. 34(ii) & 36(ii)] were not rejected at the specified level of confidence. However, F-ratio for the difference in means of children studying in Democratic/Participative and Authoritarian/Non-Participative class climate was found to be significant at the 0.01 level of confidence. The null hypothesis [Ho. 35(ii)] was rejected at the specified level. An examination of the means of two groups suggested that Democratic/Participative yielded higher scores than the Authoritarian/Non-Participative class climate.

It may concluded that:
- Children belonging to High and Low Parental Involvement groups were not different on skill in Exploring.
- Democratic/Participative class climate yielded higher levels of skill in Exploring as compared to Authoritarian/Non-Participative class climate.
- Parental Involvement and Class Climate operate independent of each other with regard to skill in Exploring.

• Skill in Knowing

It may be revealed from the table no. 4.39, that the F-ratios for the main effect of Parental Involvement and interaction effect of Parental Involvement and Class Climate were not found significant even at the 0.05 level of confidence. The difference, if any may be
ascribed to chance factor. Thus, the null hypotheses [Ho. 34(iii) & 36(iii)] were not rejected at the specified level of confidence.

However, F-ratio for the difference in means of children studying in Democratic/Participative and Authoritarian/Non-Participative class climate was found to be highly significant at the 0.01 level of confidence. An examination of means of the two groups suggested that Democratic/Participative class climate group was found to surpass their counterparts in Authoritarian/Non-Participative class climate.

It may be concluded that:

- Children belonging to High and Low Parental Involvement groups were not different on skill in Knowing.
- Democratic/Participative class climate group of children scored higher on skill in Knowing as compared to those in Authoritarian/Non-Participative class climate.
- Parental Involvement and Class Climate operate independent of each other with regard to skill in Knowing.

● Skill in Understanding

It may be seen from the table no. 4.39, that the F-ratios for the main effects of Parental Involvement and Class Climate and their interaction effect were not found to be significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 34(iv), 35(iv) & 36(iv)] were not rejected at the specified level of confidence.

It may be concluded that:

- High and Low Parental Involvement yielded equal levels of skill in Understanding for children of grades-I, II & III.
- The children of grades-I, II & III, studying in Democratic/Participative and Authoritarian/Non-Participative class climate achieved equal levels of skill in Understanding.
- For skill in Understanding, Parental Involvement and Class Climate of grades-I, II, & III, do not interact with each other.

● Skill in Sorting

It may be observed from the table no. 4.39, that F-ratios for the main effects of Parental Involvement and Class Climate and their interaction effect were not found to be significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 34(v), 35(v) & 36(v)] were not rejected at the specified level of confidence.

It may be concluded that:

- High and Low Parental Involvement yielded equal levels of skill in Sorting for children of grades-I, II & III.
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- The children of grades-I, II, & III studying in Democratic/Participative and Authoritarian/Non-Participative class climate achieved equal levels of skill in Sorting.
- For skill in Sorting, Parental Involvement and Class Climate of grades-I, II & III seem to operate independent of each other.
SOCIAL SKILLS

C.3: SOCIAL SKILLS IN RELATION TO PARENTAL INVOLVEMENT & CLASS CLIMATE

As discussed earlier, the children of high and low parental involvement groups were identified for each grade separately, and were further categorised according to Democratic/Participative and Authoritarian/Non-Participative class climate. For the children of resulting four groups viz; High Parental Involvement with Democratic/Participative and Authoritarian/Non-Participative Class Climate and Low Parental Involvement with Democratic/Participative and Authoritarian/Non-Participative Class Climate, ratings on social skills were collected from the class teachers of these children. Rating scale was an eleven point scale for twelve social skills. The class teachers of concerned classes were given a detailed introduction about the scale. Then proper instruction was also given to them regarding how to fill up the form. This responsibility was entrusted upon the class-teachers because of their close familiarity with the students. The investigator took a special care of the situation in order to ensure that the teachers were not biased towards certain students. Three more ratings were procured from three subject teachers in each grade. In all, each child were rated on social skills by atleast three subject teachers and one class teacher.

To avoid teacher bias, each teacher rated only 30 students in the class of 40 students. Teacher A rated 1 to 30 students, Teacher B rated 10 to 40, Teacher C rated 20 to 40 and 1 to 10 and Teacher D rated 30 to 40 and 1 to 20. This was done to exclude teacher bias and also to ensure that each child was rated at least three times by three different teachers.

The ratings were collected according to the following scheme:
C.3.1: Analysis of Variance for Social Skills (Global) in Relation to Parental Involvement and Class Climate

The ratings from at least 3 teachers were collected for each individual child with regard to their Social Skills. The rating scale was an eleven-point scale from which ratings were transformed into a global score for each child, according to the scoring procedure described in Chapter-II.

The global scores on social skills for the identified groups were subjected to 2 x 2 analysis of variance. The mean, sum of squares and F-ratios were computed for the two main effects of Parental Involvement and Class Climate and for their interaction effect.

The following hypotheses were tested through this analysis:

Ho.37.: High and Low Parental Involvement yield equal Levels of Social Skills (Global) for Children of Grades-I, II & III.

Ho.38: Democratic/Participative and Authoritarian/Non-Participative Class Climate yield equal Levels of Social Skills (Global) of Grades-I, II & III Children.

Ho.39: The Children Studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate and belonging to High and Low Involved Parents are not different on Social Skills (Global).

A summary of 2 x 2 ANOVA has been presented below in the table no. 4.40.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MSS</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A): Parental Involvement</td>
<td>0.2275</td>
<td>1</td>
<td>0.2275</td>
<td>0.240</td>
</tr>
<tr>
<td>(B): Class Climate</td>
<td>124.2129</td>
<td>1</td>
<td>124.2129</td>
<td>13.0868**</td>
</tr>
<tr>
<td>(AxB): Interaction Effect</td>
<td>0.7588</td>
<td>1</td>
<td>0.7588</td>
<td>0.0799</td>
</tr>
<tr>
<td>Error</td>
<td>446.1005</td>
<td>47</td>
<td>9.4915</td>
<td>-</td>
</tr>
</tbody>
</table>

** Significant at the 0.01 level of confidence

Main Effects:

It may be seen from the above table no. 4.40, that for the main effect of Parental Involvement the F-ratio for the difference in mean scores of Social Skills for children of high and low Parental Involvement (A), was not found significant even at the 0.05 level of confidence. It indicates that the two means were not statistically different from each other beyond the contribution of chance. Therefore, the null hypothesis (Ho.37) was not rejected at
the specified level of confidence. It may be concluded that children belonging to high and low Parental Involvement groups achieved equal levels of Social Skills.

For the main effect of the variable *Class Climate (B)*, the F-ratio for the difference in means of children studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate was found significant at the 0.01 level of confidence. Thus the null hypothesis (Ho. 38) was rejected at the specified level of confidence. An examination of means of the two groups indicated that children studying in Authoritarian/Non-Participative Class Climate (M = 66.72) yielded higher score on global social skills as compared to children studying in Democratic/Participative Class Climate (M = 55.59).

**Interaction Effect:**

It can be observed from the table no. 4.4b, that the F-ratio for the difference in means for the interaction effect of Parental Involvement and Class Climate, was not found to be significant even at the 0.05 level of confidence. It suggested that the two groups were not different beyond the chance factor. The null hypothesis (Ho.39) therefore, was not rejected at the specified level. It may be concluded that the children studying in Democratic/Participative and Authoritarian/Non-Participative class climate and belonging to high and low Parental Involvement groups were not different on social skills (Global).

**C.3.2: Analysis of Variance for Individual Social Skills in Relation to Parental Involvement and Class Climate**

It was ensured that each child was rated by at least three teachers and a pooled score of each individual social skill was calculated and converted onto a percentage score.

Following hypotheses were tested through this analysis:

**Ho.40: Children of High and Low Parental Involvement Achieve equal Levels of Social Skill viz:**

(i) Submissiveness;
(ii) Attention;
(iii) Communication;
(iv) Cooperation;
(v) Courage;
(vi) Courteousness;
(vii) Eagerness;
(viii) Happiness;
(ix) Independence;
(x) Leadership;
(xi) Obedience; &
(xii) Popularity.
Ho.41: For Grades-I, II, & III Children, Democratic/Participative and Authoritarian/Non-Participative Class Climate yield equal Levels of Social Skill in

(i) Submissiveness;
(ii) Attention;
(iii) Communication;
(iv) Cooperation;
(v) Courage;
(vi) Courteousness;
(vii) Eagerness;
(viii) Happiness;
(ix) Independence;
(x) Leadership;
(xi) Obedience; &
(xii) Popularity.

Ho.42: For Children belonging to High and Low Groups of Parental Involvement and Studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate, there is no Significant Difference between Social Skill in

(i) Submissiveness;
(ii) Attention;
(iii) Communication;
(iv) Cooperation;
(v) Courage;
(vi) Courteousness;
(vii) Eagerness;
(viii) Happiness;
(ix) Independence;
(x) Leadership;
(xi) Obedience; &
(xii) Popularity.

A 2 x 2 ANOVA was employed for each of the social skills separately. The F-ratios for the two main effects: Parental Involvement and Class Climate and for their interaction effect were computed and have been recorded in table no. 4.41 below:
### Table No. 4.41

Summary of Analysis of Variance on Scores of Individual Social Skills in Relation to Parental Involvement and Class Climate

<table>
<thead>
<tr>
<th>Social Skills</th>
<th>Main Effects</th>
<th>Interaction Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A) Parental Involvement</td>
<td>(B) Class Climate</td>
</tr>
<tr>
<td><strong>Submissiveness</strong></td>
<td>HPI = 5.85 DP = 5.11</td>
<td>LPI = 5.50 ANP = 6.24</td>
</tr>
<tr>
<td><strong>Attention</strong></td>
<td>HPI = 4.69 DP = 3.88</td>
<td>LPI = 4.60 ANP = 5.41</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>HPI = 4.90 DP = 3.83</td>
<td>LPI = 4.44 ANP = 5.50</td>
</tr>
<tr>
<td><strong>Cooperation</strong></td>
<td>HPI = 5.57 DP = 4.83</td>
<td>LPI = 5.01 ANP = 5.74</td>
</tr>
<tr>
<td><strong>Courage</strong></td>
<td>HPI = 5.39 DP = 4.76</td>
<td>LPI = 4.90 ANP = 5.53</td>
</tr>
<tr>
<td><strong>Courteousness</strong></td>
<td>HPI = 5.61 DP = 4.88</td>
<td>LPI = 5.48 ANP = 6.21</td>
</tr>
<tr>
<td><strong>Eagerness</strong></td>
<td>HPI = 5.25 DP = 5.28</td>
<td>LPI = 5.09 ANP = 5.07</td>
</tr>
<tr>
<td><strong>Happiness</strong></td>
<td>HPI = 5.47 DP = 5.6</td>
<td>LPI = 5.62 ANP = 5.49</td>
</tr>
<tr>
<td><strong>Independence</strong></td>
<td>HPI = 4.7 DP = 4.41</td>
<td>LPI = 5.01 ANP = 5.25</td>
</tr>
<tr>
<td><strong>Leadership</strong></td>
<td>HPI = 4.42 DP = 4.42</td>
<td>LPI = 5.21 ANP = 5.21</td>
</tr>
<tr>
<td><strong>Obedience</strong></td>
<td>HPI = 5.6 DP = 5.67</td>
<td>LPI = 6.13 ANP = 6.07</td>
</tr>
<tr>
<td><strong>Popularity</strong></td>
<td>HPI = 5.07 DP = 4.44</td>
<td>LPI = 5.04 ANP = 5.66</td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level of confidence
** Significant at the 0.01 level of confidence
Social Skill 'Submissiveness'

It may be seen from the table no. 4.41, that for scores of social skill of Submissiveness, the F-ratios for the main effect of Parental Involvement and interaction effect of Parental Involvement and Class Climate were not found significant even at the 0.05 level of confidence. Thus, the null hypotheses [Ho 40(i) & 42 (i)] were not rejected.

However, F-ratio for the difference in means of children studying in two Class Climates (Democratic/Participative and Authoritarian/Non-Participative) was found to be significant at the 0.05 level of confidence, suggesting that the two groups were different beyond chance. The null hypothesis [Ho. 41(i)] was rejected at the specified level of confidence.

An examination of the means of the two groups suggested that children studying in Authoritarian/Non-Participative class climate were high on Submissiveness as compared to their counterparts studying in Democratic/Participative class climate.

It may be concluded that:

- Children belonging to High and Low Parental Involvement groups were not found different on Social Skill in Submissiveness.
- Children in Authoritarian/Non-Participative Class Climate scored higher on Social Skill in Submissiveness as compared to children of Democratic/Participative class climate.
- Parental Involvement and Class Climate operate independent of each other with regard to Social Skill in Submissiveness.

Social Skill 'Attention'

It can be observed from the table no. 4.41, that the F-ratios for main effect of Parental Involvement and interaction effect of Parental Involvement and Class Climate were not found significant even at the 0.05 level of confidence. Thus, the null hypotheses [Ho. 40 (ii) and 42 (ii)] were not rejected.

F-ratio for the difference in means of children under two different Class Climates (Democratic/Participative and Authoritarian/Non-Participative) was found significant at the 0.01 level of confidence suggesting that the two groups were different beyond chance. The null hypothesis [Ho. 41 (ii)] was rejected at the specified level of confidence. A further probe into the means indicated that Authoritarian/Non-Participative children scored higher on Attention than their counterparts in Democratic/Participative.

It may be concluded that:

- Children belonging to High and Low Parental Involvement groups were not different on Social Skills in Attention.
- Authoritarian/Non-Participative Class Climate children yielded higher levels of Social Skill in Attention as compared to that for children of Democratic/Participative Class Climate.
Analysis & Interpretation

Parental Involvement and Class Climate operate independent of each other with regard to Social Skill in Attention.

Social Skill 'Communication'

It can be observed from the table no. 4.41, that the F-ratios for the main effect of Parent Involvement and Interaction Effect of Parental Involvement and Class Climate were not significant even at the 0.05 level of confidence. Thus, the null hypotheses [Ho. 40 (iii) and 42 (iii)] were not rejected.

F-ratio for the difference in means of children studying in Democratic/Participative and Authoritarian/Non-Participative Class Climates was found significant at the 0.01 level of confidence, which suggested that the two groups were different beyond the contribution of chance. The null hypothesis [Ho. 41 (iii)] was rejected at the specified level of confidence. An examination of the means revealed that Authoritarian/Non-Participative class climate yielded higher levels of Communication than the Democratic/Participative class climate.

It may be concluded that:

- Children belonging to High and Low Parental Involvement groups were not different on Social Skill in Communication.
- Authoritarian/Non-Participative Class Climate yielded higher levels of Social Skill in Communication as compared to Democratic/Participative Class Climate.
- Parental Involvement and Class Climate operated independent of each other with regard to Social Skill in Communication.

Social Skill 'Cooperation'

It may be seen from the table no. 4.41, that none of the F-ratios for the main effects of Parental Involvement and Class Climate and their interaction effect were found significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 40 (iv), 41 (iv) and 42 (iv)] were not rejected.

It may be concluded that:

- High and Low Parental Involvement yielded equal levels of Social Skill in Cooperation for children of grades-I, II and III.
- The children of grades-I, II and III, studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate achieved equal levels of Social Skill in Cooperation.
- For Social Skill in Cooperation, Parental Involvement and Class Climate seem to operate independent of each other.

Social Skill 'Courage'

It may be seen from the above mentioned table no. 4.41, that none of the F-ratios for the main effects of Parental Involvement and Class Climate and their interaction effect were found significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 40 (v), 41 (v) and 42 (v)] were not rejected.
It may be concluded that:

- High and Low Parental Involvement yielded equal levels of Social Skill in Courage for children of grades-I, II and III.
- The children of grades-I, II and III, studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate achieved equal levels of Social Skill in Courage.
- For Social Skill in Courage, Parental Involvement and Class Climate seem to operate independent of each other.

**Social Skill ‘Courteousness’**

It may be seen from the table no. 4.41, that the F-ratio for the main effect of Parental Involvement was not found significant even at the 0.05 level of confidence. Thus, the null hypothesis [Ho. 40 (i)] was not rejected at the specified level.

F-ratio for the main effect of class climate (Democratic/Participative/Authoritarian/Non-Participative) on social skill in Courteousness was found to be significant at the 0.01 level of confidence. Thus, the null hypothesis [Ho. 41 (vi)] was rejected at specified level.

A probe into the means of the two groups revealed that children in Authoritarian/Non-Participative class climate scored higher on Courteousness than the children in Democratic/Participative class climate.

However, F-ratio for the interaction effect of parental involvement and class climate on social skill of Courteousness was found significant at the 0.05 level of confidence. Thus the null hypothesis [Ho. 42 (vii)] was rejected at the specified level.

*Fig. 4.41 (f)* depicting a line graph for interaction between Parental Involvement and Class Climate, support these findings.
A further probe into the results was done through t-test. The t-ratios for difference in means of different combination pairs were computed and have been recorded in the following table no. 4.42.

Table No. 4.42

t-ratios for different combination pairs for the interaction of Parental Involvement and Class Climate on Social Skill in Courteousness

<table>
<thead>
<tr>
<th>P. Involvement/Class Climate</th>
<th>HPI/DP M = 4.53</th>
<th>HPI/ANP M = 6.7</th>
<th>LPI/DP M = 5.22</th>
<th>LPI/ANP M = 5.78</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPI/DP</td>
<td>-</td>
<td>13.50**</td>
<td>4.16**</td>
<td>9.09**</td>
</tr>
<tr>
<td>HPI/ANP</td>
<td>-</td>
<td>-</td>
<td>48.05**</td>
<td>6.17**</td>
</tr>
<tr>
<td>LPI/DP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.62**</td>
</tr>
<tr>
<td>LPI/ANP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

** Significant at the 0.01 level of confidence

The above table no. 4.42, depicts that all the six t-ratios, corresponding to the difference in means of:

- HPI/DP and HPI/ANP
- HPI/DP and LPI/DP
- HPI/DP and LPI/ANP
- HPI/ANP and LPI/DP
- HPI/ANP and LPI/ANP
- LPI/DP and LPI/ANP

were found significant at the 0.01 level of confidence, which indicated that the corresponding two groups were different beyond the contribution of chance. An examination of means of the two groups corresponding to the six t-ratios suggested that:

- For High Parental Involvement, Authoritarian/Non-Participative Class Climate yielded higher mean scores as compared to Democratic/Participative Class Climate on Social Skill in Courteousness.
- For Democratic/Participative Class Climate, High Parental Involvement yielded lower mean score as compared to Low Parental Involvement on Social Skill in Courteousness.
- For Authoritarian/Non-Participative Class Climate, High Parental Involvement children scored higher on Social Skill in Courteousness than Low Parental Involvement.
- For Low Parental Involvement, Authoritarian/Non-Participative Class Climate yielded higher Social Skill in Courteousness as compared to Democratic/Participative Class Climate.
• Low Parental Involvement, Authoritarian/Non-Participative Class Climate yielded higher Social Skill in *Courteousness* than High Parental Involvement and Democratic/Participative Class Climate.

• High Parental Involvement, Authoritarian/Non-Participative Class Climate yielded higher mean scores of Social Skill in *Courteousness* as compared to Low Parental Involvement, Democratic/Participative Class Climate.

**Social Skill ‘Eagerness’**

It may be seen from the above mentioned table no. 4.41, that none of the F-ratios for the main effects of parental involvement and class climate and their interaction effect were found significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 40 (vii), 41 (vii) and 42 (vii)] were not rejected.

It may be concluded that:

- **Parental Involvement yielded equal levels of Social Skill in Eagerness for children of grades-I, II and III.**
- **The children of grades-I, II and III, studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate had equal levels of Social Skills in Eagerness.**
- **For Social Skill in Eagerness, Parental involvement and Class Climate seem to operate independent of each other.**

**Social Skill ‘Happiness’**

It may be seen from above mentioned table no. 4.41, that the none of the F-ratios for main effects of Parental Involvement and Class Climate and their interaction effect were found significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 40 (viii), 41 (viii) and 42 (viii)] were not rejected.

It may be concluded that:

- **High and Low Parental Involvement yielded equal levels of Social Skill in Happiness for children of grades-I, II and III.**
- **The children of grades-I, II and III, studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate had equal levels of Social Skill in Happiness.**
- **For Social Skill in Happiness, Parental involvement and Class Climate seem to operate independent of each other.**

**Social Skill ‘Independence’**

It may be seen from above mentioned table no. 4.41, that the none of the F-ratios for main effects of Parental Involvement and Class Climate and their interaction effect were found significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 40 (ix), 41 (ix) and 42 (ix)] were not rejected.

It may be concluded that:

- **High and Low Parental Involvement yielded equal levels of Social Skill in Independence for children of grades-I, II and III.**
- **The children of grades-I, II and III, studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate had equal levels of Social Skill in Independence.**
- **For Social Skill in Independence, Parental involvement and Class Climate seem to operate independent of each other.**
significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 40 (ix), 41 (ix) and 42 (ix)] were not rejected.

It may be concluded that:

- High and Low Parental Involvement yielded equal levels of Social Skill in Independence for grades-I, II and III children.
- The children of grades-I, II and III, studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate had equal levels of Social Skill in Independence.
- For Social Skill in Independence, Parental Involvement and Class Climate seem to operate independent of each other.

- Social Skill ‘Leadership’

It may be seen from the above mentioned table no. 4.41, that none of the F-ratios for main effects of Parental Involvement and Class Climate and their interaction effect were found significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 40 (x), 41 (x) and 42 (x)] were not rejected.

It may be concluded that:

- High and Low Parental Involvement yielded equal levels of Social Skill in Leadership for children of grades-I, II and III.
- The children of grades-I, II and III, studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate had equal levels of Social Skill in Leadership.
- For Social Skill in Leadership, Parental Involvement and Class Climate seem not to interact with each other to yield different results.

- Social Skill ‘Obedience’

It may be seen from the above mentioned table no. 4.41, that none of the F-ratios for main effects of Parental Involvement and Class Climate and their interaction effect were found significant even at the 0.05 level of confidence. It suggested that the null hypotheses [Ho. 40 (xi), 41 (x) and 42 (x)] stand rejected.

It may be concluded that:

- Parental Involvement, High or Low, yielded equal levels of Social Skill in Obedience for children of grades-I, II and III.
- The children of grades-I, II and III, studying in Democratic/Participative and Authoritarian/Non-Participative Class Climate achieved equal levels of Social Skill in Obedience.
- For Social Skill in Obedience, Parental Involvement and Class Climate seem to operate independent of each other.
Social Skill 'Popularity'

It can be observed from the table no. 4.41, that the F-ratios for main effect of Parent Involvement and interaction effect of Parental Involvement and Class Climate were not found significant even at the 0.05 level of confidence. Thus, the null hypotheses [Ho. 40 (xii) and 42 (xii)] were not rejected.

The F-ratio for the difference in means of children studying under two class climates (Democratic/Participative and Authoritarian/Non-Participative) was found significant at the 0.01 level of confidence, and it suggested that the two groups were different beyond chance. The null hypothesis [Ho. 41 (xii)] was rejected at the specified level of confidence.

An examination of the means of the two groups suggested that grades-I, II & III children scored high on social skill in Popularity under Authoritarian/Non-Participative Class Climate as compared to Democratic/Participative Class Climate.

It may be concluded that:

- Children belonging to High and Low Parental Involvement groups were not different on Social Skill in Popularity.
- Authoritarian/Non-Participative Class Climate yielded higher levels of Social Skill in Popularity as compared to children of Democratic/Participative Class Climate.
- Parental Involvement and Class Climate operate independent of each other with regard to Social Skill in Popularity.
Home Variables and Parental Involvement

The research literature reveals that Parental Involvement has many dimensions, each of which is uniquely associated with one or the other factors at home. Some of the factors associated with home, which were found to be determining correlates of Parental Involvement in the present investigation were:

- qualifications of mother and father;
- type of family (Nuclear/Joint);
- working status of mother and father;
- economic status of the family.

The results of the present investigation revealed that:

- Fathers and mothers qualifications were found to be highly associated with Parental Involvement. The hypotheses (Ho.1 & Ho.2) were therefore rejected. The studies conducted by Brown (1995), Stevenson & Stigler (1992), Wilson & Wilson (1992), Blatchford (1985), Chatterjee (1977), Devi (1976), Basavaya (1974), and Dave & Dave (1971) supported the results.
- Parental Involvement has also been found to be associated with type of family. The results revealed that parents of nuclear families are more involved with their children as compared to parents in joint family. The hypothesis (Ho.3) was therefore rejected.
- Economic status of the family has also been found to be associated with Parental Involvement. The findings led to rejection of hypotheses (Ho.4, Ho.10 & Ho. 16). The results get a support from the findings of Trusty (1998), Hart & Risley (1995) Conway (1995), Hickman (1991), Moline (1999), Temey (1984), and Devdas & Watesh (1981) which have shown that socio-economic status influences I.Q., Social Quotient levels, Language expression, social development and academic achievement and Parental Interaction.
- Working status of mother was not found to be associated with Parental Involvement, where as fathers’ professional status was associated with Parental Involvement. It led to the rejection of hypothesis (Ho.6), Stevenson & Stigler (1992) suggested that non-working mothers have better parental interaction with their children.

It may be argued that except for working status of mother all other factors under study have been found to be boosters to Parental Involvement. Higher qualifications of parents, higher economic status can be understood to yield higher levels of Parental Involvement by way of higher interaction with children, by creating more healthy, academic environment at
home or by bringing more books other than course books, for their children or providing better exposure to their children. Highly qualified parents are now aware of the implications of their involvement and interest into the child's academic activities and his progress academically and socially. Also those parents who are not only better qualified but economically sound were found to bring many educative materials, games, books for their children. Some of the parents were also found to actively participate into their child's activities. All these activities are indicated of higher levels of Parental Involvement.

Parents of nuclear families were found to have better Parental Involvement than parents of joint families. It may be argued that in nuclear families children live only with parents. Grand parents, cousins, aunts, uncles are not there to interact with the child. The only interaction they have is with parents whereas in joint families a child has other anchors and communication channels with grandparents, aunts, uncles, cousins etc. In joint family therefore parents are not naturally as involved as a parent of nuclear family is.

One thing which has been found not to be associated with Parental Involvement was working status of mother whether working or non-working, the Parental Involvement was the same. Stevenson & Stigler (1992), suggested that non-working mothers have better Parental Interactions with their children, which leads to higher achievement in schools. But the children in the present investigation were too young, where mothers working status does not affect their involvement with the child in an adverse way. It seems quite natural that for mothers at least Parental Involvement seems to be more of instinctual in nature rather than an environmental influence.

Home Related Variables and Cognitive Skills

- The home related variables under investigation were also studied for their association with Cognitive Skills;
- It was found that qualifications of father and mother and the type of family were not found to be associated with Cognitive Skills of children. However, working status of mother, occupational status of father and economic status of families were found to be highly associated with Cognitive Skills of children. The null hypotheses (Ho.10, Ho.11 & Ho.12) were rejected. The results were supported by the findings of Bauld (1997), Zhao (1997), Sojourner (1997), Conway (1995), and Studers (1990), who claimed that working status of mothers and socio-economic status was associated with cognitive skills/academic achievement of the students.

It was interesting to find that neither the qualifications of parents seem to influence Cognitive Skills of children nor the type of family. It may be argued that the Cognitive Skills required to be achieved at this stage are too simple to demand, highly qualified or professional help at home. Also anyone at home viz: parents, grand parents, aunts, can provide sufficient academic guidance to the child. Highly qualified parents, grand parents or less qualified
mothers or other members of the family can provide equally sufficient help to the child.

However, economic status of the family has been found to be associated with Cognitive Skills of children. It may be argued that economic deprivation can cause biological deprivation consequently influencing the academic performance of children. Economic deprivation also leads to malnutrition and the research literature provides a basis that there is a significant positive correlation between mental and economic status.

Mothers working status has been found to be marginally associated with cognitive skills of children. Stevenson & Stigler (1992), suggested that non-working mothers have better Parental Involvement with children and higher Parental Involvement leads to higher achievements in school. The findings of the present study did not arrive at the isolated findings but an array of studies like Trusty (1998), Brown (1995), Hickman (1995), Hart & Risley (1995), Nesbitt (1994), Linda (1994), and Cochran & Riley (1988), support the findings and hence results may be accepted as a workable principle.

Parental Involvement and Cognitive Skills

When viewed globally, the Cognitive Skills in English, Mathematics and Environmental Studies were found to be related with Parental Involvement of children of grades-II & III and not with that of children of grade-I. It was a uniform trend in all the three subjects. Parental involvement was not related with cognitive skills in English for grade-I, it was marginally related for grade-II and highly related for grade-III, similarly for Mathematics the relationship was exactly the same. However, for EVS, the relationship between Parental Involvement and cognitive skills was found to exist for grades-I, II & III in an increasing way. The null hypotheses \([H_{0.19(ii)}, H_{0.19(iii)}, H_{0.20(ii)}, H_{0.20(iii)}, H_{0.21(i)}, H_{0.21(ii)}, H_{0.21(iii)}]\) were rejected.


Parental Involvement programs have shown that the children whose parents participate in Parental Involvement programmes and exhibit higher interaction with children, show significantly greater increase in language development, general achievement and communication skills. Recently there have been evidences of more specific ways that parents can affect progress of child at school. This specific way is the help in reading at home (Hewison 1988; Tizard, Shofield & Hewison 1982).

Direct teaching at home has been found to have effect on reading, language and writing. Thus indicating the significance of parental contribution to the cognitive skills of the
children. Studer, Marlena Michelle (1990), suggested that family/home care was found to be related to more favourable cognitive outcomes.

Home Factors and Social Skills

It was found that educational level of fathers (not mother) economic level of the family have been found to be associated with Social Skills of children whereas qualifications of mother, type of family (Nuclear/Joint), working status of mother and even father's occupational level have not been found to be associated with the Social Skills of children. The hypotheses (Ho. 13, & Ho.16) were therefore rejected. The results were supported by studies Billings (1998), French (1998) and Atchison (1998), Springer (1997), Patray (1997), Hainsworth (1994), Gregoire (1994), Whittenberg (1994), and Roazzi & Antonio (1990).

It may be argued that higher educational level of parents is an index of higher social environment for the child. The families with highly qualified parents, should have better social-status and normally these families socialise among families with equivalent social status. The children get an opportunity to intermingle among children of similar educational, economic and social status. Good mannerism, articulates etc. are important norms in such families. The children are expected to behave in a more cultured way as compared to children who come from families where neither the educational level of parents is higher nor the economic status. Availability of materials, books, toys, games etc and above all culture of family brings some kind of contentment among these children and development of higher levels of social skills like Cooperation, Courteousness, Courage, Self-control, Assertiveness, Problem Resolutions, Peer Interaction etc.

Impact of Parental Involvement and Class Climate on Cognitive Skills

One of the major findings of the present investigation was that Parental Involvement and Class Climate, separately, did not affect cognitive skills in English, however, the interactive effect between these two factors, resulted into higher achievement on cognitive skills in English. The null hypothesis [Ho. 27(i)] was therefore rejected. Research support to these results was provided by findings of Hussien, Mary Geater (1999), Bauld, Susan (1997), Meibers (1995), Gross Gail (1995), Brown (1995), Nesbitt (1994), Robinson (1993) and Clay Holliman (1993).

It may well be understood that English is a foreign language and achievement on English related cognitive skills is a joint venture of home and school. Those parents who are highly involved with Cognitive competence of their children and those who are studying in Authoritarian/Non-Participative Class Climate showed higher achievement in skills in English. May be, the teacher is hammering hard in these skills and is not permitting any lapse on these skills at school and also gets a supplementary support from the family because parents are highly involved. It may lead to higher achievement on these Cognitive Skills.
Skill in Listening was the only skill which seems to be affected by Parental Involvement and not Class Climate. However, remaining skills like Speaking, Reading, Comprehension, Usage Functional Grammar, Self-Learning, Language Usage and Vocabulary Control were found to be affected heavily by the Authoritarian/Non-Participative Class Climate which allows less permissiveness has proved to be better for skills like Speaking, Reading, Comprehension, Vocabulary Control and Democratic/Participative Class Climate which allows permissiveness has been found to be better for skills like Usage Functional Grammar, Self-Learning, Language Usage.

- As far as Mathematical Cognitive Skills are concerned, it is more of Parental Involvement, which seems to improve Mathematical skills rather than Class Climate or their interactive effect [Ho. 25(i)] was rejected. The results were supported by the findings of Addington (1997), Arnold Joy (1997), Meibers (1995), Robinson (1993), and Clay Holliman (1993).

Mathematics is a subject which requires much of practice and repetitions. Only very simple mathematical cognitive skills are required at grades-I, II, & III. The children in these classes are too young and mostly require individual attention for achieving these skills. It seems practically not possible for teacher in the class of 30-40 children, to attend to each individual child daily for improving these skills, hence Class Climate may not have affected these skills in a very superior way. The classrooms in India even at primary stage are too crowded and children are too non-serious and not conscious of their cognitive achievement. Hence introduction to these skills seems to be the only impact of the classroom. High Parental Involvement, and perhaps, practice at home on these cognitive skills may have raised the level of achievement. Skill in Solving and skill in Recognising have been found to be the only two skills in Mathematics which were found to be affected by Class Climate. Practice on these skills in a Democratic/Participative classrooms yielded better results.

- However Cognitive Skills in Environmental Studies to be quite general. Parental Involvement or Class Climate do not seem to affect children with regard to their achievement on EVS skills. May be these skills are more susceptible to child's attitude, interest and basic inquisitiveness which may bring them at a higher achievement levels. The two variables under investigation do not seem to have their impact on Cognitive Skills in EVS. However probing deep into achievement on individual Cognitive Skills in EVS revealed that Knowing and Exploring were two skills in EVS which improve in Democratic/Participative Class Climate. Caldwell (1961), described the optimum learning environment for small children in a warm and nurturing emotional relationship with his teacher under conditions of varied sensory and cognitive inputs. Kagan (1971), also believed that the vast majority of school failures are primarily a function of experience at school. A teacher who provides a warm, non-directive, nurturing environment and varied stimuli should be having an optimal learning environment.
Stone (1995), believed that classroom management promotes a positive learning environment. He emphasised that teachers were extremely instrumental in creating an effective classroom environment. The students benefit greater from those caring teachers who are willing and determined to make a real difference in their learning environments.

Healthier impact of class climate was also reported by Pellegrini (1995), Richard Wayne (1991), Spencer (1991) Monahan (1991), and Jeong, Young (1989). Haberer (1994) and Clapp (1994), reported no significant differences due to class interaction, class climate on cognitive skills of children. It may be argued that such studies are too scanty and also that the class climate in this study was based on organisational structures, whereas in the present investigation class climates were derived from actual classroom interactions prevailing in these grades.

Social Skills in Relation to Parental Involvement and Class Climate

When viewed globally, Social Skills were found to be related with Class Climate and not Parental Involvement. The null hypothesis (Ho. 38) was therefore rejected. However, with regard to individual Social Skills, impact of Parental Involvement was not observed on any of the Social Skills, whereas Submissiveness, Attention, Communication, Courteousness and Popularity were found to be affected by Class Climate. The hypotheses [Ho. 40 (i), 40 (ii), 40 (iv), & 40 (xii)] were rejected.

Spivalk (1971, 1974, 1977), stressed on four types of thinking required to solve interpersonal problems efficiently. The ability to conceptualize alternative solutions, step by step goal planning, consequential thinking and awareness of cause-effect relationships. In grades-I, II & III, a child's expertise in generating alternatives and means and thinking has been related to group functioning in the classroom (Spivalk & Shure, 1976). In such group-situations, Grossman & Levy (1974) found assertive behaviour to be a primary factor in adjustment. Dorman (1973) related assertive behaviours to cognitive performance.

A close look at individual Social Skills reveals that in the present investigation Submissiveness has been found to be higher in Authoritarian/Non-Participative Class Climate and Assertive behaviour seems to be an outcome of Democratic Class Climate. So is the Case with Social Skills Attention, Communication, Courteousness and Popularity.

The results are in line with the available research literature. Authoritarian/Non-Participative Class Climate appear to be more disciplinarian, non-permissive and teachers seem to exercise her authority for affecting social skills too. And children seem to be more attentive, more communicative, more courteous because of discipline and may be due to fear-psychosis too. The findings reveal that teachers perceptions of children social skills should be viewed as relative and assessed against the criterion of group behaviours in the class and not as social skills exhibited in general.