CHAPTER-4

STATISTICAL ANALYSIS OF DATA,
INTERPRETATION AND DISCUSSION

4.1: Section: I Assessment of Secondary School Principals' attitude towards ICT

4.2: Section: II Assessment of Secondary School teachers' attitude towards ICT

4.3: Section: III Assessment of Secondary School Principals implementation of ICT

4.4: Section: IV Assessment of Secondary school teachers' implementation of ICT

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CHAPTER-4

STATISTICAL ANALYSIS OF DATA, INTERPRETATION AND DISCUSSION

"He uses statistics as a drunken man uses lamp-posts for support rather than illumination."

- Andrew Lang

This chapter presents the statistical analysis of data and discusses the research findings from the analysis of questionnaires/ scales and documentation that were used as research tools in the study. The findings are presented, analyzed and interpreted as per the set hypotheses in the study. After collecting the data, it is subjected to analysis. Merriam (1998) indicates that: “the analysis usually results in the identification of recurring patterns that cut through the data or into the delineation of a process”. When the data are collected, tabulated and analyzed it divulges certain facts and meanings which can be interpreted with respect to the objectives of the study. The investigator has to analyze and interpret the data as accurately as possible. “Analysis of the data means categorizing, ordering manipulating and summarizing of data to obtain answers to the research question” (Kerlinger, 1978). Data have no meaning unless analyzed and interpreted by employing suitable statistical techniques or by well defined qualitative analysis in order to arrive at certain reliable inferences. Data analysis is the “process of making sense and meaning from the data that constitute the findings of the study” (Merriam, 1998). The interpretation and discussion of the analyzed data have been presented in the following five sections:

Section: I Assessment of Secondary School Principals attitude towards ICT.
Section: II Assessment of Secondary school teachers’ attitude towards ICT.
Section: III Assessment of Secondary School Principals implementation of ICT.
Section: IV Assessment of Secondary school teachers’ implementation of ICT.
Section: V Assessment of government initiatives and background of Information and Communication Technology scheme in secondary schools.
4.1-Section I

**Assessment of Secondary School Principals attitude towards ICT**

In order to assess secondary school Principals attitude towards ICT following objectives with respective hypothesis will be analyzed:

4.1 (a) To determine the level of attitude of Secondary School Principals’ of Jammu and Kashmir towards ICT.

4.1(b) To identify the level of attitude of Secondary school Principals’ of Uttar Pradesh towards ICT.

4.1(c) To explore the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school Principals’ attitude towards ICT.

4.1 (a): **To determine the level of attitude of Secondary School Principals’ of Jammu and Kashmir towards ICT.**

In order to study the level of attitude of secondary school Principals of Jammu and Kashmir towards Information and Communication Technology the following null hypothesis was formulated:

**Hypothesis 1:** There is no significant difference between the assumed mean and the real mean of attitude of secondary school principals of Jammu Kashmir towards ICT.

In order to know the attitude of secondary school Principals’ of Jammu and Kashmir towards Information and Communication Technology, one sample(sampling mean and assumed mean =72) t-test was used.

**Table 4.1**

**Result of t-test for one Sample**

<table>
<thead>
<tr>
<th>Principals attitude towards ICT</th>
<th>State</th>
<th>N</th>
<th>Real mean</th>
<th>Assumed mean</th>
<th>SD</th>
<th>Df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J&amp;K</td>
<td>35</td>
<td>100.62</td>
<td>72</td>
<td>8.58</td>
<td>34</td>
<td>17.6</td>
<td>.000*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

-101-
Result given in Table no {4.1} revealed that the secondary school Principals' of Jammu and Kashmir expressed positive attitude towards Information and Communication Technology as the real mean (100.62) is higher than the assumed mean (72) and the t-value (17.6) is significant at (0.05) level. This substantiates rejection of null hypothesis, 'There is no significant difference between the assumed mean and the real mean of attitude of secondary school Principals of Jammu Kashmir towards Information and Communication Technology'.

4.1(b): To identify the level of attitude of secondary school principals of Uttar Pradesh towards Information and Communication Technology.

In order to study the above mentioned objective, following null hypothesis was formulated for pragmatic confirmation:

*Hypothesis No. 2: There is no significant difference between the assumed mean and the real mean of attitude of secondary school principals of Uttar Pradesh towards Information and Communication Technology.*

To know the attitude of secondary school Principals' of Uttar Pradesh towards Information and Communication Technology, one sample t-test has been used.

**Table No 4.2**
**Result of t-test for one sample**

<table>
<thead>
<tr>
<th>Principals attitude towards ICT</th>
<th>State</th>
<th>N</th>
<th>Real mean</th>
<th>Assumed mean</th>
<th>SD</th>
<th>Df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U.P</td>
<td>38</td>
<td>108.24</td>
<td>72</td>
<td>7.12</td>
<td>37</td>
<td>31.5</td>
<td>.00*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Result specified in table {4.2} disclosed that the secondary school Principals' of Uttar Pradesh exhibited more positive attitude towards Information and Communication Technology as the real mean (108.24) is higher than the assumed mean (72) and the t-value (31.6) is significant at (0.05) level. This substantiates rejection of null hypothesis, 'There is statistically no significant difference between the assumed mean and the real mean of attitude of secondary school principals of Uttar Pradesh towards Information and Communication Technology'.
4.1(c) To explore the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school Principals' attitude towards ICT.

In order to study the above mentioned objective, following null hypothesis with three sub-hypotheses has been formulated for empirical authentication and the related data to this objective is analyzed which is given in table 4.3.

**Hypothesis No.3** There is no significant difference and influence of interaction on attitude of secondary school Principals towards ICT according to their gender (male and female) and region (J&K and U.P).

**Hypothesis (3a):** There is no significant difference in secondary school Principals attitude towards ICT with respect to their gender (male and female).

**Hypothesis (3b):** There is no significant difference in secondary school Principals attitude towards ICT with respect to the region (J&K and U.P).

**Hypothesis (3c):** There is no significant influence of interaction between gender and region on secondary school Principals attitude towards ICT.

In order to study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school Principals' attitude towards ICT Two-way ANOVA was employed.

**Table 4.3**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>259.43</td>
<td>1</td>
<td>259.43</td>
<td>4.38*</td>
<td>.040</td>
</tr>
<tr>
<td>Region</td>
<td>567.95</td>
<td>1</td>
<td>567.95</td>
<td>9.59*</td>
<td>.003</td>
</tr>
<tr>
<td>Gender * Region</td>
<td>77.71</td>
<td>1</td>
<td>77.71</td>
<td>1.31</td>
<td>.256</td>
</tr>
<tr>
<td>Error</td>
<td>4082.45</td>
<td>69</td>
<td>59.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>805494.00</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>5491.75</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

It is interpreted from the table {4.3} that F value for gender is (4.38), which is significant at 0.05 levels of significance. It means that the mean score of attitude
towards ICT of male and female secondary school Principals differs significantly. Hence, the null hypothesis (3a) \textit{there is no significant difference in secondary school Principals attitude towards ICT with respect to their gender (male and female)} is rejected and it may, therefore be concluded that gender (Male and Female) influences the secondary school Principals attitude towards ICT.

The F value for region is (9.59), which is significant at 0.05 levels. It means that mean score of attitude towards ICT of secondary school Principals' according to region (J&K and U.P) differs significantly. Hence, the null hypothesis (3b) \textit{There is no significant difference in secondary school Principals attitude towards ICT with respect to the region (J&K and U.P)} is rejected and it may, therefore be concluded that region (J&K and U.P) influences the secondary school Principals attitude towards ICT.

The F value for interaction between gender and region is (1.31), which is not significant. It means that mean score of attitude towards ICT of male and female secondary school Principals belonging to two different regions (J&K and U.P) do not differ significantly. Hence, the null hypothesis (3c) \textit{There is no significant influence of interaction between gender and region on secondary school Principals attitude towards ICT} is not rejected and it may, therefore be concluded that male and female secondary school Principals belonging to two different regions possessed same level of attitude towards ICT. Thus there are no differences among the four groups (male secondary school Principals of J&K, female secondary school Principals of J&K, male secondary school Principals of U.P and female secondary school Principals of U.P) in terms of their attitude towards ICT as shown in figure (4.1).
Fig 4.1
Influence of interaction between Gender and Region on Secondary school Principals Attitude towards ICT

Estimated Marginal Means of Secondary school Principals attitude towards ICT

Thus, there existed a significant difference in the mean score of secondary school Principals attitude towards ICT in terms of gender and region. In order to find out which group of secondary school Principals is superior in attitude towards ICT with respect to gender (male and female) and region (J&K and U.P), descriptive analysis of data was used as presented in tables (4.4) and (4.5).

Table 4.4
Shows Mean Difference between Male and Female Respondents (secondary school Principals) According to their Attitude towards ICT

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>53</td>
<td>103.37</td>
<td>8.95</td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
<td>108.15</td>
<td>7.21</td>
</tr>
</tbody>
</table>
It is evident from table (4.4) and figure (4.2) that the mean value of male Principals is (103.37) where as for females it is (108.15) which indicates that females have more positive attitude towards ICT than males.

**Fig. 4.2**
Comparison of mean difference between male and female secondary school Principals according to their attitude towards ICT

![Bar chart showing comparison of mean difference between male and female principals towards ICT]

**Table 4.5**
Shows Mean Difference between J&K and U.P Principals on their Attitude towards ICT

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>J&amp;K</td>
<td>35</td>
<td>100.62</td>
<td>8.58</td>
</tr>
<tr>
<td>U.P</td>
<td>38</td>
<td>108.42</td>
<td>7.12</td>
</tr>
</tbody>
</table>
Fig. 4.3
Comparison of mean difference between J&K and U.P secondary school principals according to their attitude towards ICT

It is clear from table 4.5 and fig. 4.3 that the mean value of J&K Principals is (100.62) whereas for U.P Principals it is (108.42). It means that secondary school Principals of U.P have more positive attitude towards ICT as compared to secondary school Principals of J&K.

4.2-Section: II
Assessment of Secondary school teachers' attitude towards ICT
In order to assess the secondary school teachers' attitude towards ICT the following objectives with relevant hypotheses will be statistically analyzed:

4.2(a): To explore the level of attitude of Secondary school teachers of Jammu and Kashmir towards ICT.

4.2(b): To ascertain the level of attitude of Secondary school teachers of Uttar Pradesh towards ICT.

4.2(c): To study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school teachers' attitude towards ICT.
4.2(a): To explore the level of attitude of Secondary school teachers of Jammu and Kashmir towards ICT.

In order to study the above stated objective, following null hypothesis was formulated for practical verification:

Hypothesis No. 4: There is no significant difference between the assumed mean and the real mean of attitude of secondary school teachers’ of Jammu Kashmir towards Information and Communication Technology.

To identify the attitude of secondary school teachers’ of Jammu Kashmir towards Information and Communication Technology, one sample t-test has been used.

Table No 4.6
Result of t-test for one sample

<table>
<thead>
<tr>
<th>Teachers attitude towards ICT</th>
<th>State</th>
<th>N</th>
<th>Real mean</th>
<th>Assumed mean</th>
<th>SD</th>
<th>Df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>J&amp;K</td>
<td>236</td>
<td>95.04</td>
<td>90</td>
<td>6.83</td>
<td>235</td>
<td>11.33</td>
<td>.000*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Result stated in Table no (4.6) revealed that the secondary school teachers of Jammu and Kashmir have positive attitude towards Information and Communication Technology as the real mean (95.04) is higher than the assumed mean (90) and the t-value (11.33) is significant at (0.05) level. This authenticates rejection of null hypothesis, 'There is statistically no significant difference between the assumed mean and the real mean of attitude of secondary school teachers’ of Jammu Kashmir towards Information and Communication Technology'.

4.4(b): To ascertain the level of attitude of Secondary school teachers of Uttar Pradesh towards Information and Communication Technology.

In order to study the above mentioned objective, following null hypothesis was formulated for empirical authentication:
Hypothesis No. 5: There is statistically no significant difference between the assumed mean and the real mean of attitude of secondary school teachers’ of Uttar Pradesh towards Information and Communication Technology.

A one sample t-test was conducted to assess the attitude of secondary school teachers’ of Uttar Pradesh towards Information and Communication Technology.

Table No 4.7
Result of t-test for one sample

<table>
<thead>
<tr>
<th>Teachers attitude towards ICT</th>
<th>State</th>
<th>N</th>
<th>Real mean</th>
<th>Assumed mean</th>
<th>SD</th>
<th>Df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U.P</td>
<td>220</td>
<td>97.5955</td>
<td>90</td>
<td>7.93</td>
<td>219</td>
<td>14.2</td>
<td>.00*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Result indicated in Table no. (4.7) revealed that the teachers of Uttar Pradesh possess positive attitude towards Information and Communication Technology as the real mean (97.59) is higher than the assumed mean (90) and the t-value (14.2) is significant at (0.05) level. This confirms rejection of null hypothesis, ‘There is no significant difference between the assumed mean and the real mean of attitude of secondary school teachers’ of Uttar Pradesh towards Information and Communication Technology’.

4.2(c): To study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school teachers’ attitude towards ICT.

In order to study the above mentioned objective, following null hypothesis with three sub-hypotheses has been formulated for empirical verification and the related data to this objective is analyzed which is given in table (4.8).

Hypothesis No.6: There is no significant difference and influence of interaction on attitude of secondary school teachers towards ICT according to their gender (male and female) and region (J&K and U.P).

Hypothesis (6a): There is no significant difference in secondary school teachers’ attitude towards ICT with respect to their gender (male and female).
Hypothesis (6b): There is no significant difference in secondary school teachers' attitude towards ICT with respect to the region (J&amp;K and U.P).

Hypothesis (6c): There is no significant influence of interaction between gender and region on secondary school teachers' attitude towards ICT.

Two-way ANOVA was employed in order study the influence of gender (male and female), region (J&amp;K and U.P) and their interaction on secondary school teachers' attitude towards ICT.

Table 4.8
Summary of 2X2 (Gender and Region) Factorial Design ANOVA for Secondary School Teachers Attitude towards ICT

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>357.78</td>
<td>1</td>
<td>357.78</td>
<td>6.65*</td>
<td>.01</td>
</tr>
<tr>
<td>Region</td>
<td>87.72</td>
<td>1</td>
<td>87.72</td>
<td>1.63</td>
<td>.20</td>
</tr>
<tr>
<td>Gender * Region</td>
<td>4.48</td>
<td>1</td>
<td>4.48</td>
<td>.08</td>
<td>.77</td>
</tr>
<tr>
<td>Error</td>
<td>24306.50</td>
<td>452</td>
<td>53.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4252230.00</td>
<td>456</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected total</td>
<td>25507.18</td>
<td>455</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

From the perusal of table {4.8} it is clear that F value for gender is (6.65), which is significant at 0.05 levels of significance. It means that the mean score of attitude towards ICT of male and female secondary school teachers differs significantly. Hence, the null hypothesis (6a) 'there is no significant difference in secondary school teachers' attitude towards ICT with respect to their gender (male and female)' is rejected and it may, therefore be concluded that gender (Male and Female) influences the secondary school teachers attitude towards ICT.

The table further reveals that the value of F (1.63) for region (J&amp;K and U.P) is not significant at 0.05 level of confidence. It means that mean score of attitude towards ICT of secondary school teachers' according to region (J&amp;K and U.P) do not differ significantly. Hence, the null hypothesis (6b) 'There is no significant difference in secondary school teachers' attitude towards ICT with respect to the region (J&amp;K and
is not rejected and it may, therefore, be concluded that region (J&K and U.P) do not influence the secondary school teachers' attitude towards ICT.

The F value for interaction between gender and region is (0.083), which is not significant. It means that mean score of attitude towards ICT of male and female secondary school teachers belonging to two different regions do not differ significantly. Hence, the null hypothesis (6c) ‘There is no significant influence of interaction between gender and region on secondary school teachers’ attitude towards ICT’ is not rejected and it may, therefore, be concluded that male and female secondary school teachers belonging to two different regions possessed same level of attitude towards ICT. Thus there are no differences among the four groups (male secondary school teachers of J&K, female secondary school teachers of J&K, male secondary school teachers of U.P and female secondary school teachers of U.P) in terms of their attitude towards ICT as shown in fig.4.4

Fig 4.4: Influence of interaction between Gender and Region on Secondary school Teachers Attitude towards ICT
Thus, there existed a significant difference in the mean score of secondary school teachers’ attitude towards ICT in terms of gender. In order to find out which group of secondary school teachers’ is superior in attitude towards ICT with respect to gender (male and female) descriptive analysis of data was used presented in table (4.9).

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>284</td>
<td>95.06</td>
<td>6.46</td>
</tr>
<tr>
<td>Female</td>
<td>172</td>
<td>98.27</td>
<td>8.57</td>
</tr>
</tbody>
</table>

Table 4.9
Shows Mean Difference between Male and Female Respondents According to their Attitude towards ICT

Fig.4.5 Comparison of mean difference between male and female respondents according to their attitude towards ICT

It is clear from table (4.9) and fig. (4.5) that the mean value for male secondary school teachers is (95.06) where as for female secondary school teachers it is (98.27), which indicates that female secondary school teachers possess more positive attitude towards ICT than male secondary school teachers.
4.3-Section: III
Assessment of Secondary School Principals implementation of ICT

For the assessment of implementation of ICT by Secondary School Principals following objectives with respective hypotheses will be subjected to statistical analyses:

4.3 (a): To study the level of implementation of ICT by the secondary school Principals’ of Jammu and Kashmir.

4.3(b): To verify the level of implementation of ICT by the secondary school Principals’ of Uttar Pradesh.

4.3(c): To study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school Principals level of implementation of ICT.

4.3 (a): To study the level of implementation of ICT by the secondary school Principals’ of Jammu and Kashmir.

In order to study the above quoted objective, following null hypothesis was formulated for pragmatic verification:

**Hypothesis No. 7:** There is no significant difference between the assumed mean and the real mean of implementation of Information and Communication Technology by the Principals of Jammu Kashmir.

To find out the implementation of Information and Communication Technology by the Principals’ of Jammu Kashmir, one sample t-test was conducted.

**Table No 4.10**

Result of t-test for one sample

<table>
<thead>
<tr>
<th>Principals implementation of ICT</th>
<th>State</th>
<th>N</th>
<th>Real mean</th>
<th>Assumed mean</th>
<th>SD</th>
<th>Df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J&amp;K</td>
<td>3</td>
<td>70.00</td>
<td>54</td>
<td>10.26</td>
<td>34</td>
<td>9.21</td>
<td>.000*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level
The results shown in table {4.10} made it clear that the t-value (9.21) is significant at (0.05) level, which authenticates rejection of null hypothesis, ‘There is no significant difference between the assumed mean and the real mean of implementation of Information and Communication Technology by the Principals of Jammu Kashmir’. The results also revealed that the level of implementation of Information and Communication Technology by the Principals of Jammu and Kashmir in their day to day work is considerably high as the real mean (70.00) is higher than the assumed mean (54).

4.3(b): To verify the level of implementation of Information and Communication Technology by the principals’ of Uttar Pradesh.

In order to study the above quoted objective, following null hypothesis was formulated for pragmatic verification:

*Hypothesis No. 8: There is no significant difference between the assumed mean and the real mean of implementation of Information and Communication Technology by the principals of Uttar Pradesh.*

To check the level of implementation of Information and Communication Technology by the Principals of Uttar Pradesh, one sample t-test was used.

**Table No 4.11**

<table>
<thead>
<tr>
<th>Principals implementation of ICT</th>
<th>State</th>
<th>N</th>
<th>Real mean</th>
<th>Assumed mean</th>
<th>SD</th>
<th>Df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U.P</td>
<td>38</td>
<td>82.26</td>
<td>54</td>
<td>5.63</td>
<td>37</td>
<td>30.9</td>
<td>.00*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Result stipulated in Table {4.11} unveiled that the level of implementation of Information and Communication Technology by the Principals’ of Uttar Pradesh in their routine work is significantly high as the real mean (82.26) is higher than the assumed mean (54) and the t-value (30.9) is significant at (0.05) level. This substantiates rejection of null hypothesis, ‘There is no significant difference between the assumed mean and the real mean of implementation of Information and Communication Technology by the Principals of Uttar Pradesh’.
4.3(c): To study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school Principals level of implementation of ICT.

In order to study the above quoted objective, following null hypothesis with three subsequent sub-hypotheses has been formulated for pragmatic verification and the related data to this objective is analyzed which is given in table (4.12).

**Hypothesis No.9** There is no significant difference and influence of interaction on implementation of ICT by the secondary school Principals according to their gender (male and female) and region (J&K and U.P).

**Hypothesis (9a):** There is no significant difference in the implementation of ICT by the secondary school Principals according to their gender (male and female).

**Hypothesis (9b):** There is no significant difference in the implementation of ICT by the secondary school Principals with respect to the region (J&K and U.P).

**Hypothesis (9c):** There is no significant influence of interaction between gender and region on secondary school Principals implementation of ICT.

In order to study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school Principals implementation of ICT Two-way ANOVA was employed.

**Table 4.12**

Summary of 2X2 (Gender and Region) Factorial Design ANOVA for Secondary School Principals implementation of ICT

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>134.786</td>
<td>1</td>
<td>134.786</td>
<td>2.02</td>
<td>.16</td>
</tr>
<tr>
<td>Region</td>
<td>2082.95</td>
<td>1</td>
<td>2082.95</td>
<td>31.23*</td>
<td>.00</td>
</tr>
<tr>
<td>Gender * Region</td>
<td>9.570</td>
<td>1</td>
<td>9.57</td>
<td>.14</td>
<td>.70</td>
</tr>
<tr>
<td>Error</td>
<td>4601.65</td>
<td>69</td>
<td>66.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>433414.00</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>7499.26</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level
It is clear from the perusal of table \{4.12\} that F value for gender is (2.02), which is not significant at 0.05 levels of significance. It means that the mean score of implementation of ICT of secondary school Principals with respect to their gender do not differ significantly. Hence, the null hypothesis (9a) "there is no significant difference in the implementation of ICT by the secondary school Principals according to their gender (male and female)" is not rejected and it may, therefore be concluded that gender (Male and Female) do not influence the secondary school Principals level of implementation of ICT.

The table further reveals that the value of F (31.23) for region (J&K and U.P) is significant at 0.05 level of confidence. It means that mean score of implementation of ICT by the secondary school Principals according to region (J&K and U.P) differs significantly. Hence, the null hypothesis (9b) "there is no significant difference in the implementation of ICT by the secondary school Principals with respect to the region (J&K and U.P)" is rejected and it may, therefore be concluded that region (J&K and U.P) influences the secondary school Principals level of implementation of ICT.

The F value for interaction between gender and region is (0.14), which is not significant. It means that mean score of implementation of ICT of male and female secondary school Principals belonging to two different regions do not differ significantly. Hence, the null hypothesis (9c) "there is no significant influence of interaction between gender and region on secondary school Principals implementation of ICT" is not rejected and it may, therefore be concluded that male and female secondary school Principals belonging to two different regions possessed same level of implementation of ICT. Thus there are no differences among the four groups (male secondary school Principals of J&K, female secondary school Principals of J&K, male secondary school Principals of U.P and female secondary school Principals of U.P) in terms of their level of implementation of ICT as shown in fig.4.6.
Thus, there existed a significant difference in the mean score of secondary school Principals' implementation of ICT in terms of region. In order to find out which group of secondary school Principals' is superior in the level of implementation of ICT with respect to region (J&K and U.P) descriptive analysis of data was used which is presented in table (4.13).
Table 4.13

Shows Mean Difference between secondary school Principals of J&K and U.P on their level of implementation of ICT

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>J&amp;K</td>
<td>35</td>
<td>70.00</td>
<td>10.26</td>
</tr>
<tr>
<td>U.P</td>
<td>38</td>
<td>82.26</td>
<td>5.63</td>
</tr>
</tbody>
</table>

Fig. 4.7 Comparison of mean difference between J&K and U.P Principals according to their level of implementation of ICT

It is evident from the perusal of table (4.13) and fig. (4.7) that the mean value of J&K secondary school Principals is (70.00) where as for U.P secondary school Principals it is (82.26). It indicates that the level of implementation of ICT by secondary school Principals of U.P is considerably high as compared to the secondary schools Principals of J&K.
4.4-Section: IV

Assessment of Secondary school teachers’ implementation of ICT

For the assessment of secondary school teachers’ implementation of ICT the following objectives with respective hypotheses will be analyzed statistically:

4.4(a): To examine the level of implementation of Information and Communication Technology by the teachers of Jammu and Kashmir.

4.4(b): To check the level of implementation of Information and Communication Technology by the teachers of Uttar Pradesh.

4.4(c): To study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school teachers’ level of implementation of ICT.

4.4(a): To examine the level of implementation of Information and Communication Technology by the teachers of Jammu and Kashmir.

In order to study the above quoted objective, following null hypothesis has been formulated for pragmatic verification:

**Hypothesis No. 10:** There is no significant difference between the assumed mean and the real mean of implementation of Information and Communication Technology by the secondary school teachers of Jammu Kashmir.

To know the level of implementation of Information and Communication Technology by the secondary school teachers of Jammu Kashmir, one sample t-test was conducted.

**Table No 4.14**

Result of t-test for one sample

<table>
<thead>
<tr>
<th>Teachers implementation of ICT</th>
<th>State</th>
<th>N</th>
<th>Real mean</th>
<th>Assumed mean</th>
<th>SD</th>
<th>Df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J&amp;K</td>
<td>236</td>
<td>26.68</td>
<td>40</td>
<td>6.8</td>
<td>235</td>
<td>30.05</td>
<td>.000*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Result given in Table {4.14} revealed that the level of implementation of Information and Communication Technology by the secondary school teachers of Jammu and Kashmir in their daily work is noticeably less as the real mean (26.68) is

-119-
less than the assumed mean (40) and the t-value (30.05) is significant at (0.05) level. This proves rejection of null hypothesis, ‘There is statistically no significant difference between the assumed mean and the real mean of implementation of Information and Communication Technology by the secondary school teachers of Jammu Kashmir’.

4.4(b) To check the level of implementation of Information and Communication Technology by the teachers of Uttar Pradesh.

In order to study the above quoted objective, following null hypothesis was formulated for pragmatic verification:

*Hypothesis No. 11: There is statistically no significant difference between the assumed mean and the real mean of implementation of Information and Communication Technology by the secondary school teachers of Uttar Pradesh.*

One sample t-test was used to assess the level of implementation of Information and Communication Technology by the secondary school teachers of Uttar Pradesh.

**Table No 4.15**

Result of t-test for one sample

<table>
<thead>
<tr>
<th>Teachers implementation of ICT</th>
<th>State</th>
<th>N</th>
<th>Real mean</th>
<th>Assumed mean</th>
<th>SD</th>
<th>Df</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.P</td>
<td>220</td>
<td>30.99</td>
<td>40</td>
<td>7.31</td>
<td>219</td>
<td>18.26</td>
<td>.000*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Result shown in table {4.15} revealed that the level of implementation of Information and Communication Technology by the secondary school teachers of Uttar Pradesh in their routine work is drastically less as the real mean (30.99) is less than the assumed mean (40) and the t-value (18.26) is significant at (0.05) level. This proves rejection of null hypothesis, ‘There is no significant difference between the assumed mean and the real mean of implementation of Information and Communication Technology by the secondary school teachers of Uttar Pradesh’.
4.4(c): To study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school teachers' level of implementation of ICT.

In order to study the above quoted objective, following null hypothesis with three subsequent sub-hypotheses has been formulated for pragmatic verification and the related data to this objective is analyzed which is given in table (4.16).

**Hypothesis No. 12:** There is no significant difference and influence of interaction on the implementation of ICT by the secondary school teachers according to their gender (male and female) and region (J&K and U.P).

**Hypothesis (12a):** There is no significant difference in the implementation of ICT by the secondary school teachers according to their gender (male and female).

**Hypothesis (12b):** There is no significant difference in the implementation of ICT by the secondary school teachers with respect to the region (J&K and U.P).

**Hypothesis (12c):** There is no significant influence of interaction between gender and region on secondary school teachers' implementation of ICT.

In order to study the influence of gender (male and female), region (J&K and U.P) and their interaction on secondary school teachers implementation of ICT Two-way ANOVA was employed.

**Table 4.16**

Summary of 2X2 (Gender and Region) Factorial Design ANOVA for Secondary School Teachers implementation of ICT

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>31.44</td>
<td>1</td>
<td>31.44</td>
<td>.63</td>
<td>.42</td>
</tr>
<tr>
<td>Region</td>
<td>1044.78</td>
<td>1</td>
<td>1044.78</td>
<td>21.08*</td>
<td>.00</td>
</tr>
<tr>
<td>Gender * Region</td>
<td>101.55</td>
<td>1</td>
<td>101.55</td>
<td>2.04</td>
<td>.15</td>
</tr>
<tr>
<td>Error</td>
<td>22401.87</td>
<td>452</td>
<td>49.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>401976.00</td>
<td>456</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>24718.42</td>
<td>455</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 0.05 level
It can be clearly interpreted from the perusal of table \{4.16\} that F value for gender is (0.63), which is not significant at 0.05 levels of significance. It means that the mean score of implementation of ICT of male and female secondary school teachers do not differ significantly. Hence, the null hypothesis (12a) *there is no significant difference in the implementation of ICT by the secondary school teachers according to their gender (male and female)* is not rejected and it may, therefore be concluded that gender (Male and Female) do not influence the secondary school teachers level of implementation of ICT.

The table further reveals that the value of F (21.08) for region (J&K and U.P) is significant at 0.05 level of confidence. It means that mean score of implementation of ICT of secondary school teachers according to region (J&K and U.P) differs significantly. Hence, the null hypothesis (12b) *there is no significant difference in the implementation of ICT by the secondary school teachers with respect to the region (J&K and U.P)* is rejected and it may, therefore be concluded that region (J&K and U.P) influences the secondary school teachers’ level of implementation of ICT.

The F value for interaction between gender and region is (2.04), which is not significant. It means that mean score of implementation of ICT of male and female secondary school teachers belonging to two different regions do not differ significantly. Hence, the null hypothesis (12c) *there is no significant influence of interaction between gender and region on secondary school teachers’ implementation of ICT* is not rejected and it may, therefore be concluded that male and female secondary school teachers belonging to two different regions possessed same level of implementation of ICT. Thus there are no differences among the four groups (male secondary school teachers of J&K, female secondary school teachers of J&K, male secondary school teachers of U.P and female secondary school teachers of U.P) in terms of their level of implementation of ICT as shown in fig.4.8.
Fig 4.8
Influence of interaction between Gender and Region on Secondary school Teachers Implementation of ICT

Estimated Marginal Means of Secondary school teachers implementation of ICT

Thus, there existed a significant difference in the mean score of secondary school teachers’ implementation of ICT in terms of region. In order to find out which group of secondary school teachers’ is superior in the level of implementation of ICT with respect to region (J&K and U.P) descriptive analysis of data was used which is presented in table (4.17)
Table 4.17
Shows Mean Difference between J&K and U.P Secondary School Teachers on their level of implementation of ICT

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>J&amp;K</td>
<td>236</td>
<td>26.68</td>
<td>6.80</td>
</tr>
<tr>
<td>U.P</td>
<td>220</td>
<td>30.99</td>
<td>7.31</td>
</tr>
</tbody>
</table>

Fig.4.9 Comparison of mean difference between J&K and U.P teachers according to their level of implementation of ICT

It is evident from the perusal of table (4.17) and fig. (4.9) that the mean value for J&K secondary school teachers is (26.68) where as for U.P secondary school teachers it is (30.99). It indicates that the level of implementation of ICT by the secondary school teachers of U.P is notably high as compared to secondary school teachers of J&K.
4.5 DISCUSSION OF SECTION I, II, III AND IV

Section: I Assessment of Secondary School Principals attitude towards ICT
Section: II Assessment of Secondary school teachers’ attitude towards ICT
Section: III Assessment of Secondary School Principals implementation of ICT
Section: IV Assessment of Secondary school teachers’ implementation of ICT

Information Communication Technology is an imperative element in the education scenario. The quality of education is often related to the use of ICT in teaching and learning. ICT is one of the important innovations for modern development. As McCain and Jukes (2001) states, “if the education system is to survive and to rise to the challenges faced within the 21st century, the system must take on the qualities of a learning organization and the teacher must take on the qualities of new millennium learners.” According to Dr. Craig Barrett, Chairman of Intel Corporation, “All the educational technology in classrooms today is worth nothing if teachers don’t know how to use it effectively. Computers are not magic, teachers are.”

The implementation of Information and Communication Technology in education has been a challenge for the overall educational system and all countries of the world are striving for the integration of Information and Communication Technology in education and to manage it according to the rising needs and demands of the 21st century. There is an increasing concern to study secondary school Principals and teachers’ attitude towards ICT and its implementation as the assimilation of ICT in education depends largely on the attitude of school administrators and teachers. In the available literature, researches have described level of secondary school Principals and teachers’ attitude towards ICT.

The principle findings of the study revealed that the secondary school Principals and teachers expressed positive attitude towards ICT. Several reports are substantiating our results that, secondary school Principals and teachers exhibit positive attitude towards Information and Communication Technology (Bolandifar et al. 2013, Abdelaziz 2013, Emmanuel and Joshua 2013, Lazarus et al. 2013, Prabhu (2013, Padmavathi 2013, Yuan and Chun-Yi Lee 2012, André du Plessis and Paul Webb 2012, Isman et al. 2012, Sahin 2011, Rajasekar and Vaiyapuri 2007). The results clearly depicted that the secondary school Principals and teachers of Uttar
Pradesh possessed considerably positive attitude towards ICT than the Principals and teachers of Jammu and Kashmir.

The results also indicated that gender (Male and Female) affects secondary school Principals and teachers’ attitude towards ICT and revealed that female secondary school Principals and teachers possessed significantly more positive attitude towards ICT than male secondary school Principals and teachers. No differences were found among the four groups of secondary school Principals (male Principals of J&K, female Principals of J&K, male Principals of U.P and female Principals of U.P) and four groups of secondary school teachers (male teachers of J&K, female teachers of J&K, male teachers of U.P and female teachers of U.P) teachers in terms of their attitude towards ICT. Samira (2011) conducted a study on Egyptian teachers’ attitude towards computers with respect to gender and years of teaching experience. The results indicated that the Egyptian public school teachers held positive attitude towards ICT. But no significant differences with respect to gender and teaching experiences were found.

The implementation of Information and Communication Technology in education helps to provide innovative information to the students and assists to inculcate innovative and technological skills in them to cater their needs. UNESCO 2002 made it clear that, “Educational systems around the world are under increasing pressure to use the new Information and Communication Technologies (ICT’s) to teach students the knowledge and skills they need in the 21st century”(UNESCO 2002). Educational institutions should be highly computerized, and all teachers should be able to use the technology to enhance their working methods (Key Data on Information and Communication Technology in Schools in Europe, 2004). In connection to this, Principals have been allocated with an extra responsibility and accountability of not only working with the technology but to introduce the technology as a part of pedagogy to improve teaching and learning through it (Gurr, 2000).

The findings also indicated that the level of implementation of ICT by secondary school Principals was considerably high and the level of implementation of ICT by secondary school teachers was considerably low. However, a trustworthy difference was seen between the Principals of Uttar Pradesh and the Principals of
Jammu Kashmir in respect of the level of implementation of Information and Communication Technology. The level of implementation of ICT by secondary school Principals of Uttar Pradesh was high as compared to the secondary school Principals of Jammu and Kashmir.

A reliable difference was also seen between secondary school teachers of Jammu and Kashmir and secondary school teachers of Uttar Pradesh in respect of their level of implementation of information and communication technology. The level of implementation of ICT by secondary school teachers of Uttar Pradesh was significantly high as compared to than secondary school teachers of Jammu and Kashmir.

It was revealed that gender (Male and Female) of secondary school Principals and teachers do not affect the implementation of ICT. However, contradictory results were seen so far as sex of secondary school Principals and teachers are concerned. The level of implementation of ICT by male secondary schools Principals was high as compared to female secondary school Principals. While as the level of implementation of ICT by female secondary school teachers was noticeably high as compared to male secondary school teacher. No differences were found among the four groups of secondary school Principals (male Principals of J&K, female Principals of J&K, male Principals of U.P and female Principals of U.P) and four groups of secondary school teachers (male teachers of J&K, female teachers of J&K, male teachers of U.P and female teachers of U.P) in terms of their implementation of ICT.

The research reports which corroborates our findings that secondary school Principals are using Information and Communication Technology in their daily work in the school (Laaria 2013, Tayo and Adedayo 2013, Anita and Smriti 2013, Ruqiyah 2011).

The Principals and teachers of secondary schools manifested positive attitude towards ICT. It may be due to the fact that they are well aware of the new innovations science has contributed like various ICT tools that can be used in the field of education for enhancing the excellence and overall quality of education. The expression of positive attitude by the Principals and teachers of secondary schools also indicates their keenness, determination and inclination towards ICT. The
secondary school Principals and teachers of Uttar Pradesh expressed considerably more positive attitude towards ICT than the Principals and teachers of Jammu and Kashmir. Probably the reason behind this may be the fact that the secondary school Principals and teachers of Uttar Pradesh are more exposed towards the novel innovations like ICT than the secondary school Principals and teachers of Jammu and Kashmir.

The results also indicated that there was no influence of interaction between gender and region on secondary school Principals and teachers' attitude towards ICT. It was also found that there was no influence of interaction between gender and region on secondary school Principals and teachers' implementation of ICT. This is probably because the conditions prevailing in the secondary schools of both the states were same, the initiatives taken by the government of India regarding the implementation of ICT in secondary schools were also same and the medium and mode of instruction also resembled.

The results also showed that the female secondary school Principals and teachers manifested more positive attitude towards ICT than male secondary school Principals and teachers. The difference between the attitude of male and female secondary school Principals and teachers towards ICT is probably because female were manifesting more expertise and were having repertoire of technological skills than male in spite of the fact that same facilities and avenues were available for both the sexes. The female were more inclined to use the innovative techniques and tactics in education. They were more serious than their counterparts in performing their duties. The seriousness, commitment and dedication were the attributes the females were endowed with and males were expressing the deficiency of the same.

It was found that the secondary schools Principals were using different ICT tools in the administrative matters. The reason behind this may be the facts that for effective administration one cannot move away from the innovative techniques and cannot work and shoulder responsibilities without using different ICT gadgets. The level of implementation of ICT by male secondary schools Principals was higher than the female secondary school Principals. The reason behind this may be the fact that female secondary school Principals were lacking in technological competence and were having more domestic liabilities like caring and rearing of children and
managing household needs. In India when a female is married, she is not married to one but she is married with a whole family meaning to say that she has to fulfill the demands of all the family members per contra to this male is always is always married to one. The findings also indicated that the level of implementation of ICT of secondary school teachers was considerably less. Lack of time, lack of ICT training, lack of technological know-how, and burden of the completion of syllabus may be the reason that hampers them from implementing ICT tools in education. This may also be due to the fact that technologically inefficient teachers were being recruited. Without Technological competence of teachers’ excellence will remain far away from the domain of education and quality of education cannot be enhanced.

Results showed a reliable difference between secondary school teachers of Jammu and Kashmir and secondary school teachers of Uttar Pradesh in respect of their level of implementation of information and communication technology. It was found that the level of implementation of ICT by secondary school teachers of Uttar Pradesh was high as compared to the secondary school teachers of Jammu and Kashmir. This may due to the fact that secondary school teachers of Uttar Pradesh manifested highly positive attitude towards ICT than secondary school teachers of Jammu and Kashmir. Another reason may be the lack of exposure the secondary school teachers of Jammu and Kashmir were endowed with. The results indicated that the levels of implementation of ICT by female secondary school teachers were found drastically high as compared to male secondary school teachers. Probably this may be due to the fact that female secondary school teachers were exercising more positive attitude towards ICT than their male counterparts.

4.6- Section: V

Assessment of government initiatives and background of Information and Communication Technology scheme in secondary schools

In this section following objective will be analyzed through documentation technique:

4.5 To highlight the government initiatives and background of Information and Communication Technology scheme in secondary schools of Jammu and Kashmir and Uttar Pradesh.

In order to understand the government initiatives and background of Information and Communication Technology Scheme in secondary schools of Jammu
and Kashmir and Uttar Pradesh following research question has been formulated and analyzed through documentation technique.

The corresponding Research question for the above mention research objective will be as;

**Research question:** What is the status of Information and Communication Technology scheme in secondary schools of Jammu and Kashmir and Uttar Pradesh?

The government of India has taken several initiatives which are targeted at secondary stage. Information and Communication Technology in schools is one of the projects aimed and implemented at secondary stage in all the states and Union Territories of India. The Information and Communication Technology Scheme in schools was launched on 15th December, 2004 to promote computer education in Government and Government aided Secondary and Senior Secondary schools in India. The ICT Scheme in schools is expected to bring innovation in teaching-learning process. The guideline of the revised Information and Communication Technology (ICT) Scheme in schools has been circulated to States and Union Territories in July 2010. The revised scheme of Information and Communication Technology in schools intended to increase Internet access to all Government and Government aided secondary and higher secondary schools. It also aimed at strengthening the teacher capacities, proposed to provide broadband connectivity and development of e-content.

Information and Communication Technology scheme in schools intended to support computer enabling learning and usage of ICT in educationally backward blocks and in areas where there is concentration of social castes, schedule tribes, minority or other weaker sections of the society. Article 46 of Indian constitution also envisages to promote the educational and economic interests of social castes, social tribes and other weaker sections of the society and to protect them from social injustice and exploitation. Education Commission 1964-66 also maintains the promotion of Education among SCs, STs and OBCs as is observed in Chapter VI, "One of the important social objectives of education is to equalize opportunity, enabling the backward or under-privileged classes and individuals to use education as a lever for the improvement of their condition. Every society that values social justice and is anxious to improve the lot of common man and cultivate all available talent must ensure progressive equality of opportunity to all sections of the
population. This is the only guarantee for the building up of an egalitarian and human society in which the exploitation of the weak will be minimized." It is really very sad that we have not paid attention to the words of wisdom of the Education Commission (1964-66).

The present study proposed to investigate secondary school Principals’ and teachers attitude towards ICT and its implementation in Uttar Pradesh and Jammu and Kashmir so it was confined to these two states only. In the state of Uttar Pradesh the total number of blocks is 830. Out of 830 the number of educationally backward blocks is 680 and Non-Educationally Backward blocks are 150. While as in the state of Jammu and Kashmir the total number of blocks is 215 with 97 Educationally Backward blocks and 118 Non-Educationally Backward Blocks.

**Table 4.18**

<table>
<thead>
<tr>
<th>State</th>
<th>Total Number of Blocks</th>
<th>Number of Educationally Backward blocks</th>
<th>Non-Educationally Backward Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uttar Pradesh</td>
<td>830</td>
<td>680</td>
<td>150</td>
</tr>
<tr>
<td>Jammu and Kashmir</td>
<td>215</td>
<td>97</td>
<td>118</td>
</tr>
</tbody>
</table>

*Source: Ministry of Human Resource Development Government of India*

It is clear from the perusal of table (4.18) that the number of Educationally Backward Blocks is more in the state of Uttar Pradesh than Jammu and Kashmir. Thus more efforts are to be utilized to promote computer enabling learning and usage of ICT in Uttar Pradesh than Jammu and Kashmir.

- Implementation of Information and Communication Technology scheme- An Evaluation

The evaluation of implementation of Information and Communication Technology scheme is being monitored at the national level by Project Monitoring and Evaluation Group (PMEG). The States have also been advised to evaluate the scheme through external organizations like Indian Institute of Technologies (IITs), Indian Institute of Information Technologies (IIITs) and National Institute of
Technologies (NITs) etc. Information and Communication Technology scheme in schools has given the approval of the establishment of 63 Smart schools in the country during the year 2011-12. The coverage of secondary schools under Information and Communication Technology implementation scheme in India from 2007-08 to 2011-12 is shown in the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Coverage of secondary schools under ICT implementation scheme</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>22833</td>
<td>20000</td>
</tr>
<tr>
<td>2008-09</td>
<td>26350</td>
<td>18000</td>
</tr>
<tr>
<td>2009-10</td>
<td>9556</td>
<td>15000</td>
</tr>
<tr>
<td>2010-11</td>
<td>20000</td>
<td>19482</td>
</tr>
<tr>
<td>2011-12</td>
<td>20000</td>
<td>14062</td>
</tr>
</tbody>
</table>

Source: Department of School Education and Literacy Ministry of Human Resource Development Government of India.

Figure 4.10

Year wise coverage and target of Secondary schools under ICT scheme in India

It is clear from the perusal of table (4.19) and figure (4.10) that during the year 2007-08, the number of secondary schools to be covered under the scheme of Information and Communication Technology was 20,000 and the number of secondary school covered under the same Scheme was 22,833 which indicates that
coverage of secondary school under ICT Scheme exceeds the target to be achieved. In the year 2008-09, the target was only 18,000 secondary schools and 26,350 secondary schools were covered under the scheme of Information and Communication Technology which clearly shows that the number of secondary schools covered under the scheme of Information and Communication Technology was considerably high as compared to the target to be achieved during the year 2008-09.

During the year 2009-10, the number of secondary schools to be covered under the scheme of Information and Communication Technology was 15,000 and the number of secondary school covered under the same Scheme was 9,556 which shows that the coverage of secondary schools under the scheme of Information and Communication Technology is considerably less as compared to the target set to be achieved during the year 2009-10.

In the year 2010-11, the target was only 19,482 secondary schools and 20,000 secondary schools were covered under the scheme of Information and Communication Technology which clearly shows that coverage exceeds the target to be achieved during the year 2010-11.

During the year 2011-12, the number of secondary schools to be covered under the scheme of Information and Communication Technology was 14,062 and the number of secondary school covered under the same Scheme was 20,000 which shows that the coverage of secondary schools under the scheme of Information and Communication Technology is significantly high as compared to the target set to be achieved during the year 2011-12.

The Project Monitoring and Evaluation Group approved schools in two parts during the year 2007-08. In its part first, the schools were approved to the state of Uttar Pradesh and no school had been granted to the state of Jammu and Kashmir in this part. The number of schools sanctioned by Project Monitoring and Evaluation Group to the state of Uttar Pradesh is shown in the table as under.
Table 4.20

Number of schools and amount approved by Project Monitoring and Evaluation Group

Part I (2007-2008)

<table>
<thead>
<tr>
<th>State</th>
<th>Provision made in State Budget</th>
<th>Schools and Amount approved by PM &amp; EG under Boot Model (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>School</td>
</tr>
<tr>
<td>U. P</td>
<td>6700.00</td>
<td>2500</td>
</tr>
</tbody>
</table>

Source: Compiled from the statistics released by: Lok Sabha Unstarred Question No. 1365, dated on 26.11.2007.

The Project Monitoring and Evaluation Group in its part second (2007-08) sanctioned funds and approved schools under the scheme of Information and Communication Technology in schools to the state of Jammu and Kashmir. The number of Schools and amount approved by Project Monitoring and Evaluation Group under scheme of Information and Communication Technology in Schools to the state of Jammu and Kashmir is shown in the table below:

Table 4.21

Number of Schools and amount approved by Project Monitoring and Evaluation Group

Part II (2007-2008)

<table>
<thead>
<tr>
<th>State</th>
<th>Schools and Amount approved by PM &amp; EG under Out Right Purchase Model (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>School</td>
</tr>
<tr>
<td>J&amp;K</td>
<td>200</td>
</tr>
</tbody>
</table>

Source: Compiled from the statistics released by: Lok Sabha Unstarred Question No. 1365, dated on 26.11.2007.

The information given in the tables (4.20) and (4.21) above clearly indicates that the state of U.P has made budgetary provisions for opening of schools under the scheme of Information and Communication Technology scheme in schools whereas
the state of Jammu and Kashmir has not made any such provisions. The state of U.P has made a budgetary provision of rupees 6700.00 lakh during the year 2007-08 for the establishment of 2500 schools while the state of J&K has not made such budgetary provisions for the establishment of 200 schools sanctioned under Information and Communication Technology scheme in schools and has not even bothered to attend the meetings held by Project Monitoring and Evaluation group for the successful implementation of ICT scheme in schools. This clearly depicts the lack of interest of the government of Jammu and Kashmir to implement the scheme of Information and Communication Technology in schools.

The Information and Communication Technology scheme is currently being introduced in all states and Union territories of India in government and government-aided secondary schools. The scheme also aims to set up Smart schools in Kendriya Vidyalayas and Navodaya Vidyalayas which are pace setting institutions of government of India to act as "Technology Demonstrators" and to lead in propagating ICT skills among students of neighboring schools. Funds were released to the state of Uttar Pradesh and Jammu and Kashmir under the scheme of Information and Communication Technology in school. The details of funds released under ICT Scheme in the schools during 2006-07, 2007-08, 2008-09, 2009-10, 2010-11 and 2011-12 is shown in the table:

Table 4.22
Fund released under ICT in school scheme during 2006-07 to 2011-12

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>Name of the State</th>
<th>Funds Released (Rs. In Lakh)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>U. P</td>
<td>3115.47</td>
</tr>
<tr>
<td>2</td>
<td>J&amp;K</td>
<td>570.06</td>
</tr>
</tbody>
</table>

Source: Ministry of Human Resource Development govt. of India

It is clear from the information given in table (4.22) that during the financial year 2007-08 Rs. 570.06 lakhs were released to the state of Jammu and Kashmir while as an amount of Rs. 3115.47 lakhs were released to the state of Uttar Pradesh and again an amount of Rs. 3984.82581 lakhs were released during the year 2010-11 and during the financial year 2011-12 up to Feb.2012 an extra amount of Rs. 6268.174 was released to the state of Uttar Pradesh under ICT scheme in schools. No doubt the
educationally backward blocks is more in Uttar Pradesh than Jammu and Kashmir but ignoring the latter all along from 2007-08 onwards clearly indicates the biased attitude towards the state of Jammu and Kashmir. Funds were released thrice to the state of Uttar Pradesh and a meager amount of Rs. 570.06 lakhs were released to the state of Jammu and Kashmir from 2007-08 to February 2012. Thus from the perusal of the information given in the table it is clear that lack of financial can be one of the reasons responsible for poor or no implementation of Information and Communication Technology scheme in the state of Jammu and Kashmir.

Financial assistance is given to the states of India under Centrally Sponsored Scheme of 'Information and Communication Technology in Schools'. The financial assistance released and utilized under the Scheme of 'Information and Communication Technology in Schools of Uttar Pradesh and Jammu and Kashmir from 2009-10 to 2012-13 is shown in the table as under:

**Table 4.23**

Financial assistance released and utilized under Centrally Sponsored scheme of 'Information and Communication Technology in schools' from 2009-10 to 2012-2013

<table>
<thead>
<tr>
<th>States</th>
<th>2009-10</th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Released</td>
<td>Utilize</td>
<td>Released</td>
<td>Utilize</td>
</tr>
<tr>
<td></td>
<td>-d</td>
<td>-d</td>
<td>-d</td>
<td>-d</td>
</tr>
<tr>
<td>U.P</td>
<td>0.00</td>
<td>0.00</td>
<td>3984.82</td>
<td>3984.8</td>
</tr>
<tr>
<td>J&amp; K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Source: Lok Sabha Unstarred Question No. 28737 dated 13.03.2013

It is clear from the information given in the table (4.23) that no amount has been released or utilized by either of the states during the year 2009-10. During the year 2010-11 an amount of Rs 3984.82 lakhs were released and the same amount were utilized by the state of Uttar Pradesh under Centrally Sponsored scheme of 'Information and Communication Technology in schools'. On the other hand, the central government has not released even a paisa to the state of Jammu and Kashmir.
under Centrally Sponsored scheme of 'Information and Communication Technology in schools' during the year 2010-11. Again in the year 2011-12 an amount of Rs 6268.17 lakhs were released to the state of Uttar Pradesh in which only an amount of Rs 4267.07 lakhs were utilized while as during the same year the state of Jammu and Kashmir was once again ignored. During the financial year 2012-13 an amount of Rs 4302.72 lakhs were released to the state of U.P and the actual figure of the utilized amount is still not available. Contrary to this, the state of Jammu and Kashmir was again ignored during the year 2012-13 as no financial assistance was released to the state. This clearly depicts that the state of Jammu and Kashmir is lagging behind in implementing the innovations and innovative schemes like ICT scheme in the education system due to lack of financial assistance given to the states and union territories by the government of India. Lack of funds once again can be counted as the reason accountable for poor implementation of ICT scheme in schools. Jammu and Kashmir possess a special status under Article 370 but lacks the eminence which is expected to have been achieved by the state of Jammu and Kashmir in the 21st Century.

The Information and Communication Technology scheme in schools approved schools to the states and union territories of India. The number of such schools sanctioned to the state of Uttar Pradesh and Jammu and Kashmir under the Centrally Sponsored Scheme of Information and Communication Technology as on 31.03.2009 is presented in the table that follows;

Table 4.24
Number of School Sanctioned under Centrally Sponsored Scheme of Information and Communication Technology (ICT) in Schools as on 31.03.2009

<table>
<thead>
<tr>
<th>States</th>
<th>School Sanctioned for coverage</th>
<th>Mode of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uttar Pradesh</td>
<td>1500</td>
<td>Boot Model</td>
</tr>
<tr>
<td>Jammu and Kashmir</td>
<td>200</td>
<td>Outrage Purchase</td>
</tr>
</tbody>
</table>

Source: Ministry of Human Resource Development, Govt. of India.

It can be depicted from the information given in table (4.24) that 1500 schools were sanctioned for coverage under Boot Model mode of implementation to the state
of Uttar Pradesh and only 200 schools were sanctioned for coverage under Out Purchase mode of implementation of Centrally Sponsored Scheme of Information and Communication Technology (ICT) in schools. In fact, the number of schools sanctioned to the state of Jammu and Kashmir is considerably less but at the ground level not a single school exists yet out of these 200 schools.

The centrally sponsored scheme of Information and Communication Technology (ICT) in schools has approved several schools including Smart schools to the states of Uttar Pradesh and Jammu and Kashmir right from 2004-2005 to 2012-2013. The details are shown in the table that follows.

**Table 4.25**

Number of schools approved (including Smart schools) under centrally sponsored scheme of Information and Communication Technology from 2004-2005 to 2012-2013

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>U.P</td>
<td>–</td>
<td>–</td>
<td>200</td>
<td>2500</td>
<td>1500</td>
<td>–</td>
<td>1500</td>
<td>1608</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>J&amp;K</td>
<td>–</td>
<td>140</td>
<td>–</td>
<td>–</td>
<td>200</td>
<td>–</td>
<td>–</td>
<td>0</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Rajya Sabha Unstarred Question No. 3189, dated on 04.05.2012 and Lok Sabha Unstarred Question No. 2737, dated on 13.03.2013.*

The information given in table (4.25) clearly indicates that during the year 2006-07 200 schools were approved to the state of U.P. In the year 2007-08 2500 schools were approved to the state of U.P. Again during the year 2010-11 1500 schools were sanctioned to the state of U.P. During the year 2011-12 1608 schools were approved to the state of U.P. Five smart schools have also been approved to the state of U.P under centrally sponsored scheme of Information and Communication Technology. While as only during the years 2005-06 and 2009-10 140 and 200 schools respectively were approved to the state of Jammu and Kashmir and no smart school has been approved to the state of J&K under centrally sponsored scheme of Information and Communication Technology. This again indicates the prejudiced treatment to the state of J&K. *Thus it can be said that less or no number of schools*
approved to the state of J&K can be another reason responsible for poor or no implementation of ICT scheme in the state. Smart schools for smart learners or digital learners is need of the hour but unfortunately no such school has been approved so far under centrally sponsored scheme of Information and Communication Technology to the state of J&K. This again indicates callous treatment to the state of J&K by the government of India which can be the reason responsible for lack of awareness about ICT and its use in education among teachers. However it is a matter of great concern to find out the causes responsible for poor or no response of Ministry of Human Resource Development towards proper implementation of ICT Scheme in secondary schools of Jammu and Kashmir.

Department of School Education and Literacy, Ministry of Human Resource Development Government of India informed through a letter dated 20th January 2014 with number as: F.No. 11-35/2007-Sch-5 to the Secretary Education Jammu and Kashmir that 200 schools sanctioned under Centrally Sponsored Scheme of ICT in Schools in 2008-09 stands cancelled with refunding of unspent balance of Rupees 603 lakh lying with the state as the government of the state is facing problems in implementing the scheme. The state government agreed to pay back the unspent amount.

Several agencies are working for the strengthening of educational system in the country. National University of Educational Planning and Administration (NUEPA) is also concerned with the intensification of educational management information system. It devises the State Report Cards of Secondary Education in India. The State Report Cards of Secondary Education 2012-13 is based on the data received from as many as 228 thousand schools spread over 662 districts across 35 States and Union Territories. The investigator has used the State Secondary Education Report Cards 2012-13 to demonstrate the percentage secondary schools with computer, electricity, Internet facility and Information and Communication Technology Laboratory in Jammu and Kashmir and Uttar Pradesh.

The percentage of all secondary and higher secondary schools with computer in Jammu and Kashmir and Uttar Pradesh is shown in the table that follows:
Table 4.26  
Percentage of schools with computer at secondary school level in J&K and U.P

<table>
<thead>
<tr>
<th>State</th>
<th>Percentage of secondary schools with computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jammu and Kashmir</td>
<td>57.30%</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>26.73%</td>
</tr>
</tbody>
</table>


It is clear from the information given in table (4.26) and from the Fig. 4.11 that the percentage of all secondary and higher secondary schools with computer is more in Jammu and Kashmir than Uttar Pradesh. In Jammu and Kashmir it is 57.30% while as Uttar Pradesh it is only 26.73%.

Fig. 4.11  
Comparison between the percentage of Secondary schools with computer in Jammu and Kashmir and Uttar Pradesh

Table 4.27  
Percentage of secondary schools with electricity in Jammu and Kashmir and Uttar Pradesh

<table>
<thead>
<tr>
<th>State</th>
<th>Percentage of secondary schools with electricity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jammu and Kashmir</td>
<td>70.02%</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>78.14%</td>
</tr>
</tbody>
</table>

Fig. 4.12
Comparison between the percentage of secondary schools with Electricity in Jammu and Kashmir and Uttar Pradesh

The information in the table (4.27) and figure (4.12) revealed that the percentage of schools with electricity facility is more in the state of Uttar Pradesh than Jammu and Kashmir. In U.P it is 78.14% while as in the state of Jammu and Kashmir it is only 70.02%.

Table 4.28
Percentage of secondary schools with Internet facility in Jammu and Kashmir and Uttar Pradesh

<table>
<thead>
<tr>
<th>State</th>
<th>Percentage of secondary schools with Internet facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jammu and Kashmir</td>
<td>42.72%</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>19.49%</td>
</tr>
</tbody>
</table>

The information in the table (4.28) and figure (4.13) revealed that the percentage of schools with Internet facility is more in the state of Jammu and Kashmir than Uttar Pradesh. In J&K it is 42.72% while as in the state of U.P it is only 19.49%.

Table 4.29
Percentage of secondary schools with ICT laboratory in Jammu and Kashmir and Uttar Pradesh

<table>
<thead>
<tr>
<th>State</th>
<th>Percentage of secondary schools with ICT lab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jammu and Kashmir</td>
<td>13.46%</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>25.53%</td>
</tr>
</tbody>
</table>

From the perusal of table (4.29) and figure (4.14) it is clear that the percentage of schools with ICT Laboratories is more in the state of Uttar Pradesh than Jammu and Kashmir. In U.P it is 25.53% while as in the state of J&K it is only 13.46%.

Thus it can be concluded from the information gathered from State Report Cards of Secondary Education that the percentage of secondary schools with computer and Internet facility in Uttar Pradesh is significantly less than Jammu and Kashmir. But on the other hand, it was found after the analysis of quantitative data gathered by employing different research scales given in section (I) that the secondary school Principals of Uttar Pradesh expressed considerably more positive attitude towards ICT than the secondary school Principals of Jammu and Kashmir.

It was also found that the percentage of secondary schools with electricity facility and ICT laboratory facility is more in Uttar Pradesh than Jammu and Kashmir. Results in section III and IV revealed that the level of implementation of ICT by the secondary school Principals and teachers of Uttar Pradesh is considerably high as compared to the secondary school Principals and teachers of Jammu and Kashmir.
Thus it may be concluded that the Principals of Uttar Pradesh exhibited noticeably more positive attitude than the Principals of Jammu and Kashmir and the reason may be the fact that the secondary schools with computer facility are more functional in Uttar Pradesh than Jammu and Kashmir as was seen by the investigator himself while visiting these institutions for the collection of data. But conversely, in Jammu and Kashmir the percentage of secondary schools with computer and Internet facility is more in Jammu and Kashmir than Uttar Pradesh as per State Report Cards of Secondary Education 2012-13. It was found that the level of implementation of ICT by the secondary school Principals and teachers is considerably less in Jammu and Kashmir than Uttar Pradesh. This may probably due to the fact that secondary schools of Jammu and Kashmir are with computer facility but defunct. The investigator while visiting different higher secondary schools of district Pulwama of Jammu and Kashmir for the collection of data met with the Principals who claimed that we have computer facilities but totally obsolete and the Internet was found nowhere in the higher secondary schools of District Pulwama of Jammu and Kashmir. The percentage of secondary schools with ICT laboratory is also less in Jammu and Kashmir than Uttar Pradesh as per State Report Cards of Secondary Education. These may be the probable reasons responsible for secondary school Principals of Jammu and Kashmir who expressed considerably less positive attitude towards ICT than the secondary school Principals Uttar Pradesh.

4.7 DISCUSSION

Section V

Assessment of government initiatives and background of Information and Communication Technology scheme in secondary schools

The National Policy on Information and Communication Technology in School Education aims at creating an ICT-knowledgeable society, providing free access to ICT enabled tools and resources to teachers and students and motivate the sections of the society strengthening the school education process through appropriate utilization of ICT (revised National Policy on Information and Communication Technology in School Education, 2012).

The quality of education can be improved by integrating innovative techniques in education. Funds were released, provisions were made in state budgets, and schools
were opened, infrastructure was developed, training was provided, satellites were launched, policies were framed, meetings were held, minutes were framed and schemes were devised for the successful implementation of Information and Communication Technology scheme in the country. However, the progress of the scheme varies differently between various states and union territories. The present investigation, in this backdrop, is an endeavor to study secondary school Principals and teachers' attitude towards ICT and its implementation in Jammu and Kashmir and Uttar Pradesh. The Indian statistics revealed that the two states vary in terms of literacy rate. The literacy rate of Jammu and Kashmir is 68.74 while as literacy rate of Uttar Pradesh is 69.72 which is more than the literacy rate of Jammu and Kashmir. 

Funds were released and properly utilized by the government of Uttar Pradesh. However, the state government of Jammu and Kashmir failed to utilize funds sanctioned under centrally sponsored scheme of Information and Communication Technology in schools. A letter was dispatched on 20th January 2014 with number as: F.No. 11-35/2007-Sch-5 to the Secretary Education Jammu and Kashmir by Department of School Education and Literacy, Ministry of Human Resource Development Government of India with the information that 200 schools sanctioned under Centrally Sponsored Scheme of ICT in Schools in 2008-09 stands cancelled with refunding of unspent balance of Rupees 603 lakh lying with the state and the state government agreed to pay back the unspent amount as soon as possible. Per contra to this the government of Uttar Pradesh spent a huge amount of funds under the scheme of Information and Communication Technology in schools. Thus the state government of Uttar Pradesh is committed, motivation oriented and serious in implementing the innovations in education sector. While as the state government of Jammu and Kashmir showed callousness, lack of motivation and commitment, inability to utilize funds approved and released under the scheme of Information and Communication Technology and the value of innovative techniques, tactics and innovations which can bring laurels to the whole education system in the state.

It is clear from the letter dispatched on 20th January 2014 by the Department of School Education and Literacy, Ministry of Human Resource Development government of India that the government of Jammu and Kashmir is not competent, determinant and capable enough to utilize the funds released under the scheme of ICT in schools. Now it is impressed up on the Ministry of Human Resource Development,
government of India that the government of Jammu and Kashmir must be made accountable for poor or non-utilization of funds released for the development of education system in the state.
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