CHAPTER IV
Organization 1: Bharti Televenture Limited

Telecom Industry Scenario – An Overview

India is the fourth-largest telecom market in Asia after China, Japan and South Korea. The Indian Telecom network is the 8th largest in the world and the 2nd largest amongst emerging economies. The industry has witnessed an explosive growth in recent years. Tele-density has more than doubled from 2.3% in 1999 to 4.8% in 2002. However the world average is almost 7.5 times and the Asian average is 4.5 times the Indian average. The Indian Telecom market size of over US$ 8 billion is expected to increase 3 fold by 2012.

The expansion of the telecom industry in India has been fueled by a massive growth in mobile phone users, which has reached a level of 10 million users in December 2002, an increase of nearly 100% in 2002. This exponential growth of mobile telephony can be attributed to the introduction of digital cellular technology and decrease in tariffs due to competitive pressures.

Challenges to Indian Telecom industry: The Indian Telecom market has witnessed dramatic de-regulation. The year 2002 has seen several key developments, such as rollout of internet telephony services, privatization of VSNL and ending its monopoly by opening up the international long distance services sector. Telecom is an emerging
industry and the players are expected to grapple with complex issues of new technologies and an evolving regulatory framework. This has led to increased competitive pressures in telecom industry with seven telecom players looking to acquire and retain customers. (Airtel, Hutch, Idea Cellular Limited, MTNL Limited / BSNL, Reliance Infocom, Tata Teleservice Limited)

**Organization Overview**

Bharti Televentures Limited (Now Bharti Airtel Limited): Bharti Televentures Limited is an integrated telecom service provider in the country, incorporated in the year 1995 for promoting investment in Telecommunication services with brand name Airtel. Airtel entered the Telecom Services business with a mobile license for Delhi. Today, it is India’s leading private sector provider of telecommunication services, with a national presence. Airtel has been ranked at number 16 according to market capitalization by economic times in September 2003. The company’s financial Partners / Investors include Singtel, Warburg Pincus’ (now bought by Vodafone), International Finance Corporation, Asian Infrastructure Fund Group and New York Life Insurance. Bharti Tele-ventures, its subsidiaries and management have received several awards and recognitions, including:

- Adjudged as Leading Telecommunications Service Provider in India (Business World, September 2001)
• Selected as “Leading Lights of Telecom” in Asia (November 2001 Asian edition of the Teledotcom magazine with analytical inputs from research consultants Frost & Sullivan)

• “Techies” – Best Cellular Service award for four consecutive years

• Asia Pacific Award for most “Innovative HR Practices” – 1999

• Golden Peacock National Training award - 2000

• Sunil Bharti Mittal, Chairman & Managing Director
  o Selected as the “Businessman of the year 2002” by Business India
  o Selected as the “CEO of the year – 2002” by World HRD Congress
  o Selected as the “Dataquest IT Man of the year 2002” by Dataquest.
  o Chosen as one of the “Stars of Asia” by Business Week
  o Selected as one of the top Global Entrepreneurs by Business Week
  o Adjudged Entrepreneur of the Year (ICE sector) by Ernst and Young

• Akhil Gupta, Joint Managing Director, adjudged as CFO of the year (2001) for “M & A” by Economic Intelligence Unit

• Innovative HR Practices Award – Telecom Sector – 2002” by World HRD Congress

• Golden Peacock National Training Award – 2002 (Runners up)
Bharti Televenture Limited – Sales Structure

To acquire customers, Airtel has independent sales structure as shown figure 4.1.

Figure 4.1: Sales Structure at Airtel –

Delhi

For the purpose of this study, full service outlet has been selected through random selection. Chits were prepared with name of each sales
channel, these chits were put in a box and one chit was drawn randomly, without looking.

**Full service outlet:** Full service outlets are Airtel showrooms, meant to provide all services to customers. These outlets are franchisee owned. All employees are employed and managed by franchisee or his representative but trained by Airtel. Organizational structure at full service outlet is shown in figure 4.2.

Figure 4.2: Organization Structure - Full Service Outlet
Sampling for Organization 1

For the purpose of this study, FSO at National Capital Region of Delhi (NCR) are considered as universe. NCR is divided into seven zones having total of 34 FSO. Seven zones are East, West, North, South, Central, Gurgaon, Noida & Ghaziabad.

Experimental Group Selection: Two zones of South Delhi and Gurgaon has been selected through random selection. This selection was done by writing names of all zones on chits and selecting two chits without looking and without replacement. Total number of FSO in these two zones was ten.

Control Group Selection: One FSO from each of the remaining 5 zones was selected as control group through random selection, even though no other intervention was planned at any other FSO in universe. Hence, the control group constituted total of 5 FSO. Details of number of FSO and number of executives (FOS) in experimental group, control group and universe are given in table 4.1.

Table 4.1: Sample Size - Airtel

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Full Service Outlet (FSO)</th>
<th>No. of Feet on Street (FOS) / Executives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>10</td>
<td>57</td>
</tr>
<tr>
<td>Control Group</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Universe</td>
<td>34</td>
<td>182</td>
</tr>
</tbody>
</table>
**Key result areas of FSO:** Full Service Outlet (FSO) is the face of Airtel, where Airtel provide service to customers in person. Customer walks into FSO to

- Buy a new mobile connection
- Get his queries resolved/log complaint, if any
- Deposit payment for their bill

**Key deliverables of full service outlet (FSO) are:**

- Sales of mobile connections: sales is measured through
  - Number of mobile connections sold by FSO
  - Average number of mobile connections sold by each FOS (also called as average productivity per person)

**Objective of Study – Bharti Televenture Limited**

Keeping in mind the key deliverable at FSO objective of study was defined as

- To evaluate, if training of FOS influences the business critical parameter of number of mobile connections sold at FSO.

**Training Initiative – Bharti Televenture Limited**

A comprehensive training program was developed to deliver training to experimental group, keeping in mind the objective of study. This included

- Training need analysis
• Training content development
• Defining effectiveness measures
• Training delivery
  o Classroom training
  o On-job training
• Training evaluation

Training evaluation of experimental group was done in line with level 2, level 3, and level 4 of Kirkpatrick Model of training evaluation.

• **Level 1: Reaction** – Did the participants like the training?
  o Class room training feedback is taken immediately after the training from the participant, did they like the training? Since, this is only participant reaction to training and does not evaluate any change in behaviour or business results, reaction feedback and its implications are not been analysed in this study.

• **Level 2: Learning** – Did the participants learn something in the training?
  o A knowledge test is conducted to evaluate what the participants learn from the training.

• **Level 3: Behaviour** – Did the participants apply what they learned in the training back on the job?
Skill evaluation of participants on the job was conducted to evaluate the change in behaviour, as per skill evaluation matrix.

- **Level 4: Results** – Did the participants’ application on the job impact the organization?
  - Number of mobile connections sold by FSO and productivity per person is considered to evaluate if the application on the job has impacted the organization in form of any improvement in sales results.

Level 2, 3 and 4 evaluations are done by collecting pre-training and post-training data in following areas and its statistical analysis:

- Knowledge scores
- Skill scores
- Result score/Sales figures

**KNOWLEDGE SCORE EVALUATION**

An on-line test was conducted for executives from experimental group and control group. This test included questions on

- Airtel background
- Airtel product knowledge including technology, product features and prices
- Process knowledge

Test paper had total of 60 questions.
Results of knowledge test are given below:

**Pre-Training Knowledge Score Comparison – Experimental Group vs Control Group**

Table 4.2: Pre-training Knowledge Score Comparison – Experimental Group vs Control Group

<table>
<thead>
<tr>
<th></th>
<th>Mean knowledge score Pre-training (%)</th>
<th>o (Standard Deviation) of knowledge scores Pre-Training</th>
<th>Pre-Training Knowledge Scores Difference of Means (D)</th>
<th>t</th>
<th>t critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experimental Group</strong></td>
<td>35.61</td>
<td>16.14</td>
<td></td>
<td>1.82</td>
<td>3.012</td>
</tr>
<tr>
<td><strong>Control Group</strong></td>
<td>43.18</td>
<td>17.78</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comparison of pre-training knowledge scores for experimental group and control group is shown in table 4.2. This comparison shows that, while the average pre-training knowledge score for experimental group is 35.61%, the average pre-training knowledge score for control group is 43.18%. The difference of means shows that pre-training average scores for control group are higher by 7.57%, when compared to pre-training knowledge scores for the experimental group. This may be due to higher knowledge level of control group employees as compared to experimental group employees.

'\( t \)' is calculated by the formula given below;

\[
t = \frac{(M_1 - M_2)}{\sqrt{\left(\frac{(o_1^2 \cdot o_1)}{(n_1 - 1)}\right) + \left(\frac{(o_2^2 \cdot o_2)}{(n_2 - 1)}\right) \cdot (1 - \gamma^2)}}
\]

In this case, since the samples are independent, the value of \( \gamma = 0 \)
Since, t score of 1.82 is less than t-critical value of 3.012 at 99% significance (0.01) level. This shows that difference of knowledge between experimental group and control group is statistically not significant. This means that even though the average knowledge score for control group employees is higher than average knowledge score of experimental group employees, this difference is not significant at 99% significance level. Hence, both experimental group and control group employees can be considered as statistically equal, when compared with respect to their knowledge scores.

**Post-Training Knowledge Scores:**

Table 4.3: Post-training Knowledge Scores - Airtel

<table>
<thead>
<tr>
<th></th>
<th>Mean knowledge score Post-training (%)</th>
<th>σ (Standard Deviation) of knowledge scores Post-Training</th>
<th>Post-Training Knowledge Scores Difference of Means (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>80.34</td>
<td>13.2</td>
<td>35.99</td>
</tr>
<tr>
<td>Control Group</td>
<td>44.35</td>
<td>13.88</td>
<td></td>
</tr>
</tbody>
</table>

Comparison of post-training knowledge scores for experimental group and control group is shown in table 4.3. This comparison shows that, while the average post-training knowledge score for experimental group is 80.34%, the average post-training knowledge score for control group is 44.35%. The difference of means shows that post-training average scores
for experimental group are higher by 35.99%, when compared to post-training knowledge scores for the control group.

This demonstrates movement of difference of means for knowledge scores by 43.56%, post-training in favour of the experimental group.

Since, same evaluation was conducted for both experimental group and control group employees, after similar time durations, higher increase in knowledge level among experimental group employees as compared to control group employees may be attributed to training, which has been provided to experimental group employees only.

**Experimental Group Knowledge Scores:**

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>Mean Knowledge Score (%)</th>
<th>Standard Deviation of Knowledge Scores</th>
<th>Knowledge Scores Difference of Means (D)</th>
<th>t</th>
<th>t-critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>35.61</td>
<td>16.14</td>
<td>44.73</td>
<td>16.82</td>
<td>3.012</td>
</tr>
<tr>
<td>Post-Training</td>
<td>80.34</td>
<td>13.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Experimental group knowledge scores are shown in table 4.4. This shows that for the experimental group of 57 executives, average pre-training knowledge score was 35.61% with standard deviation of 16.14. Post-training average knowledge score for experimental group has increased to 80.34% with standard deviation of 13.2. Difference of means is 44.73%. Improvement in average knowledge scores for experimental group, pre-training and post-training is by 79.34%. This shows that there is
substantial improvement in knowledge scores of experimental group employees post-training.

\[ t = 16.82 \]

Value of \( t \) for pre-training knowledge score and post-training knowledge score for experimental group is 16.82. Since, \( t \)-value is greater than \( t \)-critical value of 3.012 at 99% significance (0.01) level. Hence, when compared with pre-training knowledge scores, there is significant improvement in knowledge scores after the training for the experimental group. This demonstrates that training has resulted in enhance knowledge level for experimental group employees.

**Control Group Knowledge Scores:**

Table 4.5: Control Group Knowledge Scores - Airtel

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Mean Knowledge Score (%)</th>
<th>( \Sigma ) (Standard Deviation) of knowledge scores</th>
<th>Knowledge Scores Difference of Means (D)</th>
<th>t</th>
<th>( t )-critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>43.18</td>
<td>17.78</td>
<td>1.17</td>
<td>0.32</td>
<td>3.012</td>
</tr>
<tr>
<td>Post-Training</td>
<td>44.35</td>
<td>13.88</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Control group knowledge scores are shown in table 4.5. This shows that for the control group of 26 executives, average pre-training knowledge score was 43.18% with standard deviation of 17.78. Average knowledge score for control group post-training has increased to 44.35% with standard deviation of 13.88. Difference of means is 1.17%.
Average knowledge scores for control group, pre-training and post-training has improved by 2.7%. This marginal improvement in knowledge scores for the control group may be attributed to on-the-job learning process by control group employees.

\[ t = 0.32 \]

Value of \( t \) for pre-training knowledge score and post-training knowledge score for control group is 0.32. **Since, \textit{t-value of 0.32 is lesser than t-critical value of 3.012 at 99\% significance (0.01) level.}** Hence, when compared with pre-training knowledge scores, improvement in knowledge scores calculated for the control group has not been found as significant. This demonstrates that through the natural process of on-the-job learning, improvement in knowledge level of executives is not significant.

Pre-training knowledge level for both the experimental group and control group, was found to be same. Post-training \textit{the improvement in knowledge scores for experimental group is found to be significant, while improvement in knowledge scores for control group is found to be not significant at 99\% significance (0.01) level.} While there is improvement in knowledge level of employees due to on-the-job learning and development, however, this improvement is not significant. Since, the only difference in two groups is administration of training to experimental group and no training inputs for control group. **Hence, the significant improvement of knowledge scores of experimental group can be attributed to training.**
In this case, null hypotheses 1, ‘$H_0$: Training will not impact the knowledge of sales and service executives in service industry’ is rejected. As demonstrated in table 4.3, 4.4 and 4.5, training has significantly impacted the knowledge of sales executives in service industry. Thus, alternate hypotheses 1, ‘$H_1$: Training impacts the knowledge of the sales and service executives in service industry’, is accepted.

**Graphical Representation of Knowledge Scores:**

Knowledge scores for both the experimental group and the control group evaluated before training and after training can also be shown graphically, as in Figure 4.3.
ON-THE-JOB SKILL SCORE EVALUATION

On-the-job skill score evaluation was conducted on the basis of skill assessment sheet used by Airtel. Skill evaluations were done by a single observer to ensure consistency in evaluation. These assessments were done prior to training and post-training in a time slot of 2 weeks. Each FSO was observed for an hour and at-least 4 calls for the behaviours exhibit during his/her interaction with customer. FSO from both experimental group and control group were observed on defined template.

Results of skill evaluation test are given below in table:
Pre-Training Skill Evaluation Score Comparison: Experimental Group vs Control Group:

Table 4.6: Pre-training Skill Evaluation Score Comparison: Experimental Group vs Control Group - Airtel

<table>
<thead>
<tr>
<th></th>
<th>Mean skill evaluation score Pre-training (%)</th>
<th>σ (Standard Deviation) of skill evaluation scores Pre-Training</th>
<th>Pre-Training skill evaluation scores Difference of Means (D)</th>
<th>t</th>
<th>t-critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>46.5</td>
<td>0.31</td>
<td>- 21.0</td>
<td>2.88</td>
<td>3.012</td>
</tr>
<tr>
<td>Control Group</td>
<td>67.5</td>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comparison of pre-training skill evaluation scores for experimental group and control group is shown in table 4.6. This comparison shows that, while the average pre-training skill evaluation score for experimental group is 46.5%, the average pre-training skill evaluation score for control group is 67.5%. The difference of means shows that pre-training average scores for control group are higher by 21%, when compared to pre-training skill evaluation scores for the experimental group. This may be due to higher on-the-job skill level of control group employees as compared to experimental group employees.

\[ t = 2.88 \]

'T' score of 2.88 is less than t-critical value of 3.012 at 99% significance (0.01) level. This shows that difference in skill evaluation score between experimental group and control group is not statistically significant at 99% significance (0.01) level. This means that even though
the average skill evaluation score for control group employees is higher than average skill evaluation score of experimental group employees, this difference is not significant at 99% significance level. Hence, both experimental group and control group employees can be considered as statistically equal, when compared with respect to their skill evaluation scores.

**Post-Training Skill Evaluation Scores:**

<table>
<thead>
<tr>
<th></th>
<th>Mean skill evaluation score Post-training (%)</th>
<th>σ (Standard Deviation) of skill evaluation scores Post-Training</th>
<th>Post-Training skill evaluation scores Difference of Means (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>83</td>
<td>0.19</td>
<td>12</td>
</tr>
<tr>
<td>Control Group</td>
<td>71</td>
<td>0.26</td>
<td></td>
</tr>
</tbody>
</table>

Comparison of post-training skill evaluation scores for experimental group and control group is shown in table 4.7. This comparison shows that, while the average post-training skill evaluation score for experimental group is 83%, the average post-training skill evaluation score for control group is 71%. The difference of means shows that post-training average scores for experimental group are higher by 12%, when compared to post-training skill evaluation scores for the control group.
This demonstrates movement of difference of means for skill evaluation scores by 33%, post-training in favour of the experimental group. Since, same evaluation was conducted for both experimental group and control group employees, after similar time durations, higher increase in on-the-job skill evaluation score among experimental group employees as compared to control group employees may be attributed to training, which has been provided to experimental group employees only.

Experimental Group Skill Evaluation Scores:

Table 4.8: Experimental Group Skill Evaluation Scores - Airtel

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>Mean Skill Evaluation Score (%)</th>
<th>(\sigma) (Standard Deviation) of Skill Evaluation Scores</th>
<th>Skill Evaluation Scores Difference of Means (D)</th>
<th>t</th>
<th>t-critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>46.5</td>
<td>0.31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Training</td>
<td>83</td>
<td>0.19</td>
<td>36.5</td>
<td>7.73</td>
<td>3.012</td>
</tr>
</tbody>
</table>

Experimental group skill evaluation scores are shown in table 4.8. This shows that for the experimental group of 57 executives, average pre-training skill evaluation score was 46.5% with standard deviation of 0.31. Post-training average skill evaluation score for experimental group has increased to 83% with standard deviation of 0.19. Difference of means, D = 36.5%. This shows that there is substantial improvement in skill evaluation scores of experimental group employees post-training.
Average skill evaluation scores for experimental group, pre-training and post-training has improved by 78.49%.

\[ t = 7.73 \]

Value of \( t \) for pre-training skill evaluation score and post-training skill evaluation score for experimental group is 7.73. Value of \( t \) is greater than \( t \)-critical value of 3.012 at 99% significance (0.01) level. Hence, when compared with pre-training skill evaluation scores, there is significant improvement in skill evaluation scores after the training for the experimental group. This demonstrates that training has resulted in enhance on-the-job skill level for experimental group employees.

**Control Group Skill Evaluation Scores:**

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Mean Skill Evaluation Score (%)</th>
<th>( \sigma ) (Standard Deviation) of Skill Evaluation Scores</th>
<th>Skill Evaluation Scores Difference of Means (D)</th>
<th>( t )</th>
<th>( t )-critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>67.5</td>
<td>0.3</td>
<td>3.5</td>
<td>0.32</td>
<td>3.012</td>
</tr>
<tr>
<td>Post-Training</td>
<td>71</td>
<td>0.26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Control group skill evaluation scores are shown in table 4.9. This shows that for the control group of 26 executives, average pre-training skill evaluation score was 67.5% with standard deviation of 0.3. Average skill evaluation score for control group post-training has increased to 71% with standard deviation of 0.26. Difference of means, \( D = 3.5 \)
Average skill evaluation scores for control group, pre-training and post-training has improved by 5.19%. This marginal improvement in on-the-job skill evaluation scores for the control group may be attributed to on-the-job learning process by control group employees.

\[ t = 0.32 \]

Value of \( t \) for pre-training skill evaluation score and post-training skill evaluation score for control group is 0.32. \textbf{t-value is less than t-critical value of 3.012 at 99% significance (0.01) level}. Hence, the shift in skill evaluation scores for control group is not significant.

Hence, when compared with pre-training on-the-job skill evaluation scores, improvement in skill evaluation scores calculated for the control group has not been found as significant. This demonstrates that through the natural process of on-the-job learning, improvement in on-the-job skill level of executives is not significant.

Pre-training on-the-job skill level for both the experimental group and control group was found to be same. Post-training \textbf{the improvement in on-the-job skill evaluation scores for experimental group is found to be significant}, while improvement in on-the-job skill evaluation scores for control group is found to be not significant \textbf{at 99% significance (0.01) level}. While there is improvement in on-the-job skill level of employees due to on-the-job learning and development, however, this improvement is not significant. Since, the only difference in two groups is administration of training to experimental group and no
training inputs for control group. **Hence, the significant improvement of on-the-job skill evaluation scores of experimental group can be attributed to training.**

In this case, null hypotheses 2, 'H₀₂: Training will not impact on-the-job skill of sales and service executives in service industry' is rejected. As demonstrated in table 4.7, 4.8 and 4.9, training has significantly impacted on-the-job skills of sales executives in service industry.

Thus, alternate hypotheses 2, 'H₁₂: Training impacts on-the-job skills of the sales and service executives in service industry', is accepted

**Graphical Representation of Skill Evaluation Scores:**

Skill evaluation scores for both the experimental group and the control group evaluated before training and after training can also be shown graphically, as in figure 4.4.
RESULT EVALUATION

Business results were evaluated in terms of average sale per person per month at each full service outlet (FSO). Sales figures were provided by Airtel. Since, sales are impacted by periodic schemes and competitor activities; trending and analysis of monthly data was not possible. For purpose of this study, three month running average is considered.

Monthly sales per person or sales productivity figures are given below in table:
Pre-Training Sales per Person per Month Figures Comparison –

Experimental Group vs Control Group:

Table 4.10: Pre-training Monthly Sales per Person Comparison: Experimental Group vs Control Group - Airtel

<table>
<thead>
<tr>
<th>Pre-Training Scores</th>
<th>Average Sales per Person per Month</th>
<th>σ (Standard Deviation)</th>
<th>Pre-Training Sales per Person per Month Difference of Means (D)</th>
<th>t</th>
<th>t-critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>19.01</td>
<td>6.96</td>
<td></td>
<td>2.51</td>
<td>3.012</td>
</tr>
<tr>
<td>Control Group</td>
<td>28.59</td>
<td>18.51</td>
<td>-9.58</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comparison of pre-training sales per person per month for experimental group and control group is shown in table 4.10. This comparison shows that, while the average monthly sale per person for the experimental group pre-training is 19.01, the average sales per person per month, for control group pre-training is 28.59. The difference of means shows that pre-training score for control group are higher by 9.58, when compared to pre-training scores for the experimental group. This may be due to higher level of performance by control group employees as compared to experimental group employees.

\[ t = 2.51 \]

t score of 2.51 is less than 3.012 at (99% significance) 0.01 level. **This shows that difference in monthly sales per person between experimental group and control group is not significant at 99% significance (0.01) level.** This means that even though the average
monthly sales per person for control group employees is higher than average monthly sales per person of experimental group employees, this difference is not significant at 99% significance level. Hence, both experimental group and control group employees can be considered as statistically equal, when compared with respect to their business performance of monthly sales per person.

Post-Training Monthly Sales per Person Comparison – Experimental Group vs Control Group:

Table 4.11: Post-training: Monthly Sales per Person Comparison:
Experimental Group vs Control Group - Airtel

<table>
<thead>
<tr>
<th>Post-Training Scores</th>
<th>Average Sales per Person per Month</th>
<th>σ (Standard Deviation)</th>
<th>Pre-Training Sales per Person per Month Difference of Means (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>44.30</td>
<td>22.44</td>
<td>11.21</td>
</tr>
<tr>
<td>Control Group</td>
<td>33.1</td>
<td>15.76</td>
<td></td>
</tr>
</tbody>
</table>

Comparison of post-training monthly sales per person comparison for experimental group and control group is shown in table 4.11. This comparison shows that, while the average sale per person per month for experimental group post-training is 44.30, the average sale per person per month for control group post-training is 33.1 mobile connections. The difference of means shows that post-training sale for experimental group is higher by 11.21 connections, when compared to post-training sale for the control group.
This demonstrates movement of difference of means for monthly sales per person by 20.2 connections, post-training in favour of the experimental group. Since, business result of monthly sales per person was conducted for both experimental group and control group employees, during same time duration; steeper increase in monthly sales per person among experimental group employees as compared to control group employees may be attributed to training, which has been provided to experimental group employees only.

**Experimental Group Monthly Sales per Person:**

Table 4.12: Experimental Group – Monthly Sale per Person - Airtel

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>Average Sale per Person per Month</th>
<th>σ (Standard Deviation) of Sale per Person per Month</th>
<th>Difference of Means – Average Sale per Person per Month (D)</th>
<th>t</th>
<th>t-critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>19.01</td>
<td>6.97</td>
<td>25.3</td>
<td>9.2</td>
<td>3.012</td>
</tr>
<tr>
<td>Post-Training</td>
<td>44.31</td>
<td>22.44</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pre-training and post-training experimental group sale figures are shown in table 4.12. This shows that for the experimental group from 10 FSO comprising 57 executives, average pre-training sale per person was 19.01 mobile connections per month with standard deviation of 6.97. Post-training average sale per person per month for experimental group has increased to 44.31% with standard deviation of 22.44. Difference of means, D = 25.3. This shows that there is substantial improvement in
monthly sales per person for experimental group employees post-training.

Average sale per person per month for experimental group, pre-training and post-training has improved by 133%.

\[ t = 9.2 \]

Value of \( t \) for pre-training monthly sales per person and post-training monthly sales per person for experimental group is 9.2. **t-value is greater than t-critical value 3.012 at 99% significance (0.01) level.**

Hence, when compared with pre-training knowledge scores, there is significant improvement in average monthly sales per person after the training for the experimental group. This demonstrates that training has resulted in increased business result of monthly sales per person for experimental group employees.

**Control Group Monthly Sales per Person:**

Table 4.13: Control Group: Monthly Sales Per Person - Airtel

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Average Sales per Person per Month</th>
<th>( \sigma ) (Standard Deviation) of Sales per Person per Month</th>
<th>Difference of Means – Sales per Person per Month (D)</th>
<th>( t )</th>
<th>t-critical at 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>28.59</td>
<td>18.51</td>
<td>4.51</td>
<td>1.18</td>
<td>3.012</td>
</tr>
<tr>
<td>Post-Training</td>
<td>33.1</td>
<td>15.76</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Control group sales per person per month are shown in table 4.13. This shows that for the control group from 5 FSO comprising 26 executives
from 5 zones, average sales per person was 28.59 mobile connections per month with standard deviation of 18.51. Average sale per person per month for control group post-training has increased to 33.1 mobile connections per person per month with standard deviation of 15.76. Average sale per person per month for control group, pre-training and post-training has improved by 4.51 or 15.75%. This marginal improvement in monthly sales per person for the control group may be attributed to on-the-job learning process by control group employees or impact of extraneous factor, resulting in better business results.

\[ t = 1.18 \]

Value of \( t \) for pre-training and post-training customer satisfaction score for control group is 1.18. **t-value is lesser than t-critical value of 3.012 at 99% significance (0.01) level.** Hence, when compared with pre-training monthly sales per month, improvement in average monthly sales per month calculated for the control group has not been found as significant. This demonstrates that through the natural process of on-the-job learning, improvement in business performance in terms of monthly sales/month of executives is not significant.

Pre-training business performance of monthly sales per person for both the experimental group and control group was found to be same. Post-training **the improvement in business performance of monthly sale per person for experimental group is found to be significant, while improvement in business performance for control group is found to**
be not significant at 99% significance (0.01) level. While there is improvement in business performance of employees due to on-the-job learning and development, however, this improvement is not significant. Since, the only difference in two groups is administration of training to experimental group and no training inputs for control group. **Hence, the significant improvement of business performance of monthly sale per person of experimental group can be attributed to training.**

In this case, null hypotheses 3, 'H₀₃: Training will not impact business performance of sales and service executives in service industry' is rejected. As demonstrated in table 4.11, 4.12 and 4.13, training has significantly impacted the business performance of sales executives in service industry.

Thus, alternate hypotheses 3, 'H₁₃. Training impacts the performance on key business parameters', is accepted

**Graphical Representation of Monthly Sales per Person:**

Graphical representation of monthly sales per person for control group and experimental group before training and after training is shown in figure 4.5.
Figure 4.5: Graphical Representation of Results: Monthly Sales per Person – Airtel

![Bar chart showing monthly sales per person for Experimental and Control Groups before and after training.](chart.png)

- **Time**
  - Pre-Training
  - Post-Training

- **Monthly Sales per Person**
  - Experimental Group:
    - Pre-Training: 19.01
    - Post-Training: 28.59
  - Control Group:
    - Pre-Training: 33.1
    - Post-Training: 44.31
CORRELATION BETWEEN OUTPUT PARAMETERS

The shift in all output parameters of knowledge scores, on-the-job skill scores and monthly sales per person was found to be significant at 99% significance level for the experimental group. Correlation between intermediate output parameter of knowledge scores and on-the-job skill evaluation scores and final business result of monthly sales per person for the experimental group has been calculated to evaluate cause-effect relationship between various output parameters.

Correlation between knowledge scores and skill evaluation scores for the experimental group:

Correlation between knowledge scores and skill evaluation scores for the experimental group was calculated, results are as shown in table 4.14:

Table 4.14: Correlation between knowledge and skill evaluation scores for experimental group - Airtel

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>Knowledge Score (%)</th>
<th>Skill Evaluation Score (%)</th>
<th>Y</th>
<th>6 PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>35.61</td>
<td>46.5</td>
<td>0.92</td>
<td>0.13</td>
</tr>
<tr>
<td>Post-Training</td>
<td>80.34</td>
<td>83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correlation between knowledge and skill score movement pre-training and post-training for experimental group was measured at 0.92.

Probable error (PE) using the above mentioned formula and was measured as 0.02.

6 PE = 0.13
Since $6PE < \gamma$ for knowledge score and skill evaluation scores for experimental group, the correlation between knowledge score and skill evaluation score is statistically significant. This means that change in employee knowledge score is resulting in change in skill evaluation score. This can be attributed to improvement in on-the-job skill of the employee due to his increased knowledge level. Increase in knowledge may have resulted in increased understanding and ability to perform the job at hand, resulting in better on-the-job skill. This correlation is evident from table 4.14. Hence, null hypotheses, 'H₀₄: On-the-job skills of sales and service executive will not be significantly related to their knowledge' is rejected, and alternate hypotheses 'H₁₄: On-the-job skills of sales and service executive are significantly related to knowledge of executive', is accepted in this case.

**Correlation between knowledge scores and monthly sales per person for the experimental group:**

Correlation between knowledge scores and monthly sales per person for the experimental group was calculated, results are as shown in table 4.15.
Table 4.15: Correlation between knowledge scores and monthly sales per person for experimental group - Airtel

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>Knowledge Score (%)</th>
<th>Sales per Person per Month</th>
<th>$\gamma$</th>
<th>6 P.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>35.61</td>
<td>19.01</td>
<td>0.68</td>
<td>0.48</td>
</tr>
<tr>
<td>Post-Training</td>
<td>80.34</td>
<td>44.31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correlation between knowledge and monthly sales per person movement pre-training and post-training for experimental group is measured at $0.68$. Probable error (PE) was calculated using formula shown above and is measured at 0.08.

$6 \text{ PE} = 0.48$

Since $6\text{PE} < \gamma$ for knowledge score and sales per person per month for experimental group, the correlation between knowledge score and sales per person per month is statistically significant. This means that change in people skill evaluation score is resulting in change in monthly sales per person. This can be attributed to improvement in business result of monthly sales per person of the employee due to his increased knowledge level. Increase in knowledge may have resulted in increased understanding and ability to perform the job at hand, resulting in better performance on-the-job and increased productivity in terms of monthly sales. This correlation is evident from table 4.15. Hence, null hypotheses, ‘$H_05$: Performance on business parameters of sales and service executive will not be significantly related
to their knowledge' is rejected and alternate hypotheses ‘H_5'.
Performance on business parameters of sales and service executives is
significantly related to their knowledge’ is accepted in this case.

**Correlation between skill evaluation scores and monthly sales per
person for the experimental group**

Correlation between skill evaluation scores and sales per person per
month for the experimental group was calculated, results are as shown
in table 4.16.

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Skill Evaluation Score (%)</th>
<th>Sales per Person per Month</th>
<th>( \gamma )</th>
<th>6 P.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Training</td>
<td>46.5</td>
<td>19.01</td>
<td>0.64</td>
<td>0.54</td>
</tr>
<tr>
<td>Post-Training</td>
<td>83</td>
<td>44.31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Correlation between skill evaluation score and average sales per person
per month movement pre-training and post-training for experimental
group measured at \( 0.64 \).

Probable error (PE) was calculated using formula shown above and is
measured at 0.09.

\( 6 \text{ PE} = 0.54. \)

Since \( 6\text{ PE} < \gamma \) for skill evaluation score and sales per person per
month for experimental group, the correlation between skill
evaluation score and sales per person per month is statistically
significant. This means that change in people skill evaluation score is resulting in change in monthly sales per person. This can be attributed to improvement in business result of monthly sales per person of the employee due to employee increased on-the-job skill level. Increase in on-the-job skill may have resulted in increase in employee ability to perform the job at hand, effective selling in this case, resulting in better performance on-the-job and increased productivity in terms of monthly sales. This correlation is evident from table 4.16. Hence, null hypotheses, 'H₀₆: Performance on business parameters of sales and service executive will not be significantly related to their on-the-job skills' is rejected and alternate hypotheses 'H₁₆. Performance on business parameters of sales and service executives is significantly related to their on-the-job skill' is accepted in this case.

**CONCLUSION**

The control group and experimental group are clearly identified and divided physically. The only difference was administration of training to experimental group, which was absent in control group. The output parameters of training were evaluated in terms of knowledge scores and skill evaluation scores, which can be primarily influenced by training inputs. The correlation of these outputs was evaluated between knowledge scores and skill evaluation scores with the ultimate business objective of monthly sales per person.
The data clearly demonstrates that there is **significant improvement in intermediate parameters of knowledge scores** (table 4.4) and **skill evaluation score** (table 4.8) and business results of monthly sales per person (4.12) for the experimental group at 99% significance level. Also, there exists **significant correlation** for the experimental group between

- **Knowledge scores and skill evaluation scores** (table 4.14)
- **Knowledge scores and ultimate business results of sales per person per month** (table 4.15)
- **Skill evaluation scores and sales per person per month** (table 4.16)

Whereas, in case of control group there is no significant improvement in intermediate results (knowledge (table 4.5) and skill scores (table 4.9)) and final business result (sales per person per month) (table 4.13). This demonstrates that **in case of experimental group the pace of learning has increased**, which is demonstrates the impact of training on business critical results of sales.