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## A Study On The Impact Of Technical Training On Employees Efficiency

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**Abstract:** This study explores the impact of technical training on employee efficiency in a manufacturing environment. Data from 186 employees and supporting research highlight improvements in confidence, independence, and technical skills. Hands-on training proved most effective, followed by digital and theoretical methods. Structured programs and post-performance support significantly enhanced productivity. The findings support ongoing investment in accessible, results-driven training initiatives.

**Keywords:** Technical Training, Employee Efficiency, Workforce Development, Hands-on Training

### 1. INTRODUCTION

This study explores the impact of technical training on employee productivity in the automotive service sector. It assesses how training influences skills such as diagnostics, timely repairs, error reduction, and customer service. As vehicle technology evolves, the need for skilled technicians grows, making effective training essential. Data from performance records, interviews, and training evaluations provide insights into program effectiveness. The findings aim to guide service firms in optimizing training for improved efficiency and business success.

### Importance of Technical Training in the Automotive Sector

In today's rapidly advancing automotive service industry, technical training has become a vital tool for enhancing employee performance and efficiency. With the growing complexity of modern vehicles, especially electric and autonomous models, skilled technicians are in high demand. Technical training equips employees with the necessary diagnostic, repair, and problem-solving skills to meet evolving service standards. This not only improves operational effectiveness but also contributes to higher customer satisfaction and service quality.

### Linking Employee Efficiency to Organizational Success

Employee efficiency, driven by a combination of skills, motivation, and continuous learning, directly impacts an organization's productivity and competitiveness. Companies that invest in structured, hands-on, and digital training programs are better positioned to adapt to technological changes and reduce operational errors.

Efficient employees contribute to faster turnaround times, fewer service failures, and improved client experiences, all of which are critical for long-term business success in a highly competitive industry.

## 2. OBJECTIVES OF THE STUDY

- ✓ To understand how technical training impact on employees' skills
- ✓ To study how the structured training process helps technicians grow in their roles
- ✓ To evaluate how hands-on training and online learning impact employees' ability to fix and maintain vehicles efficiently.
- ✓ To find out if technical training helps employees reduce errors and solve problems better.

## 3.SCOPE OF THE STUDY

This study evaluates the impact of technical training programs on employee efficiency through hands-on practice, e-learning, and theoretical instruction. It examines how structured training reduces errors, enhances problem-solving, and supports career growth. The role of gap analysis in identifying underperformance and guiding further training is also assessed. The findings aim to optimize training strategies and improve overall workforce performance.

## 4.REVIEW OF LITERATURE

**Braz, S. M., Winkler, I., & Catapan, M. F. (2023).** This study evaluates the practicality of using immersive virtualization technologies in technical training programs. The authors found that such technologies enhance learning experiences, improve knowledge retention, and contribute to increased workplace safety by simulating real-world scenarios.

**Poorani, S., & Krishnan, L. R. K. (2023).** This paper investigates how emerging technologies and changing work practices affect employee engagement in the automobile industry. The findings suggest that integrating advanced technologies leads to higher engagement levels, which in turn enhances productivity and job satisfaction.

## 5.RESEARCH METHODOLOGY

The study employs a structured research methodology combining primary data from employee surveys and secondary data from literature review. A pilot study with 50 participants refined the questionnaire, and a final sample of 186 was selected using De Morgan's table and convenience sampling. Data was collected via Google Forms shared through WhatsApp and Email. The methodology ensured reliability and relevance in assessing the impact of technical training on employee performance.

## 6.DATA ANALYSIS AND INTERPRETATION

| Categories           | Sub categories         | No. of respondents | Percentage (%) |
|----------------------|------------------------|--------------------|----------------|
| Current Designation  | Diagnostic Technician  | 97                 | 52.2           |
|                      | Electrical Technician  | 36                 | 19.4           |
|                      | Maintenance Technician | 31                 | 16.7           |
|                      | AC Technician          | 22                 | 11.7           |
| Employees Experience | Less than 1 year       | 80                 | 43             |
|                      | 1-3 years              | 50                 | 26.9           |
|                      | 3-5 years              | 32                 | 17.2           |
|                      | More than 5 years      | 24                 | 12.9           |

|                                  |                                        |            |            |
|----------------------------------|----------------------------------------|------------|------------|
| Attending Technical Training     | Yes                                    | 143        | 76.9       |
|                                  | No                                     | 43         | 23.1       |
| Training Participation Frequency | Monthly                                | 67         | 36         |
|                                  | Quarterly                              | 57         | 30.6       |
|                                  | Annually                               | 41         | 22         |
|                                  | Only when required                     | 21         | 11.4       |
| Types Of Training Undertaken     | Hands-on practical training            | 90         | 48.4       |
|                                  | Online training via I Training website | 56         | 30.1       |
|                                  | Theoretical classroom training         | 27         | 14.5       |
|                                  | Evaluation-based training              | 13         | 7          |
| <b>TOTAL</b>                     | <b>ALL CATEGORIES</b>                  | <b>186</b> | <b>100</b> |

## FINDINGS

The survey data reveals that the highest proportion of respondents were Diagnostic Technicians (52.2%), followed by Electrical Technicians (19.4%), Maintenance Technicians (16.7%), and AC Technicians (11.7%). Regarding work experience, 43% of employees had less than 1 year of experience, 26.9% had 1–3 years, 17.2% had 3–5 years, and only 12.9% had more than 5 years. A significant 76.9% of employees reported attending technical training, while 23.1% did not. When asked about the frequency of training participation, 36% attended monthly, 30.6% attended quarterly, 22% annually, and 11.4% participated only when required. In terms of training methods, 48.4% undertook hands-on practical training, 30.1% participated in online training via the I Training website, 14.5% attended theoretical classroom training, and 7% were involved in evaluation-based training.

## Inference:

- The majority of respondents (52.2%) are in diagnostic roles.
- Most of the respondents (43%) are relatively new, with less than 1 year of experience.
- The majority (76.9%) have participated in technical training.
- Most respondents (36%) attend training on a monthly basis.
- The majority (48.4%) prefer hands-on practical training.

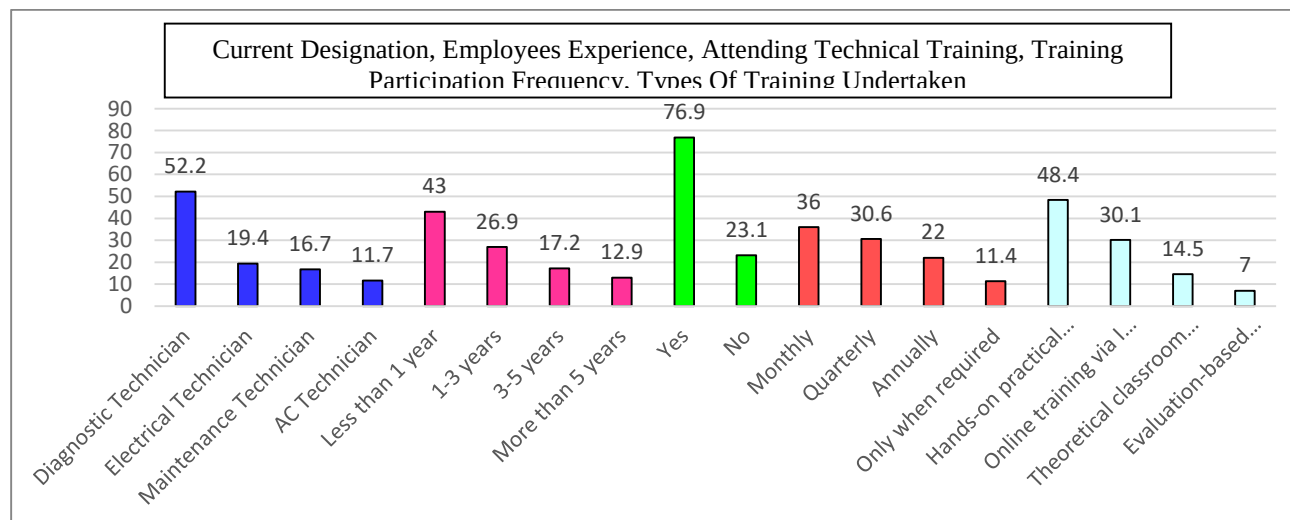


Figure 1: Demographic profile

## 6. STATISTICAL TOOLS

### CORRELATION

**Null hypothesis  $H_0$ :** No significant correlation exists between post-training troubleshooting improvement and factors like structured training, career growth, training material usage, and supervisor support needs.

**Alternative hypothesis  $H_1$ :** Significant positive correlations exist between post-training troubleshooting improvement and the above-mentioned training-related factors.

**Table 04-spearman rank correlation**

|                         | Improvement in Troubleshooting Speed Post-Training | Structured Training & Career Growth Path | Training Material Usage Frequency | Post-Training Need for Supervisor Support |
|-------------------------|----------------------------------------------------|------------------------------------------|-----------------------------------|-------------------------------------------|
| Correlation Coefficient | 1.000                                              | .182*                                    | .202**                            | .202**                                    |
| Sig. (2-tailed)         | .                                                  | .013                                     | .006                              | .006                                      |
| N                       | 186                                                | 186                                      | 186                               | 186                                       |
| Correlation Coefficient | .182*                                              | 1.000                                    | .254**                            | .180*                                     |
| Sig. (2-tailed)         | .013                                               | .                                        | .000                              | .014                                      |
| N                       | 186                                                | 186                                      | 186                               | 186                                       |
| Correlation Coefficient | .202**                                             | .254**                                   | 1.000                             | .188*                                     |
| Sig. (2-tailed)         | .006                                               | .000                                     | .                                 | .010                                      |
| N                       | 186                                                | 186                                      | 186                               | 186                                       |
| Correlation Coefficient | .202**                                             | .180*                                    | .188*                             | 1.000                                     |
| Sig. (2-tailed)         | .006                                               | .014                                     | .010                              | .                                         |
| N                       | 186                                                | 186                                      | 186                               | 186                                       |

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

### INTERPRETATION

The Spearman's correlation shows significant positive relationships among training-related variables, indicating the effectiveness of technical training. Troubleshooting speed improvement post-training is linked to structured training, frequent material use, and supervisor support. Though correlations are weak to

moderate, they confirm that better training perception aligns with improved performance and resource engagement.

### MANN-WHITNEY U-TEST

**Null Hypothesis (H0):** There are no significant differences in training-related outcomes between employees with <1 year and >5 years of experience.

**Alternative Hypothesis (H1):** Significant differences exist in training-related outcomes between these two experience groups.

**Table 03: mann-whitney u-test**

| Test Statistics <sup>a</sup> |                                                    |                                          |                                   |                                           |
|------------------------------|----------------------------------------------------|------------------------------------------|-----------------------------------|-------------------------------------------|
|                              | Improvement in Troubleshooting Speed Post-Training | Structured Training & Career Growth Path | Training Material Usage Frequency | Post-Training Need for Supervisor Support |
| Mann-Whitney U               | 703.500                                            | 855.500                                  | 906.000                           | 758.500                                   |
| Wilcoxon W                   | 1003.500                                           | 1155.500                                 | 4146.000                          | 3998.500                                  |
| Z                            | -2.187                                             | -.869                                    | -.448                             | -1.645                                    |
| Asymp. Sig. (2-tailed)       | .029                                               | .385                                     | .654                              | .100                                      |

a. Grouping Variable: Years of experience in automotive service industry

### INTERPRETATION

Significant improvement in troubleshooting speed for newer employees ( $p = .029$ ).. No significant differences in structured training ( $p = .385$ ) and material usage ( $p = .654$ ).. Training impact generally consistent, with greater benefit for less experienced staff.

### KRUSKAL WALLIS H TEST

**Null Hypothesis (H0):** No significant differences in training-related outcomes across experience groups.

**Alternative Hypothesis (H1):** Significant differences exist in training-related outcomes across experience groups.

**Table 04-kruskal walis H test**

| <b>Test Statistics<sup>a,b</sup></b> |                                                    |                                          |                                   |                                           |
|--------------------------------------|----------------------------------------------------|------------------------------------------|-----------------------------------|-------------------------------------------|
|                                      | Improvement in Troubleshooting Speed Post-Training | Structured Training & Career Growth Path | Training Material Usage Frequency | Post-Training Need for Supervisor Support |
| Chi-Square                           | 10.603                                             | 6.620                                    | 6.167                             | 5.227                                     |
| df                                   | 3                                                  | 3                                        | 3                                 | 3                                         |
| Asymp. Sig.                          | .014                                               | .085                                     | .104                              | .156                                      |

a. Kruskal Wallis Test

b. Grouping Variable: Years of experience in automotive service industry

**INTERPRETATION**

Significant difference found in troubleshooting speed improvement across experience levels ( $p = .014$ ), highest in the 3–5 years group.. No significant differences in structured training, material usage, or supervisor support ( $p > .05$ ).. Only troubleshooting speed varies meaningfully, suggesting targeted benefits based on experience.

**7.SUMMARY OF FINDINGS**

- ✓ The majority of respondents (52.2%) were Diagnostic Technicians, and most employees (43%) had less than 1 year of experience, indicating a young workforce.
- ✓ A large proportion (76.9%) had attended technical training, showing high engagement in skill development.
- ✓ Monthly training participation was the most common (36%), followed by quarterly sessions (30.6%).
- ✓ Hands-on practical training was the preferred method (48.4%), highlighting the importance of experiential learning.
- ✓ Online training via the I Training website was also widely used (30.1%), reflecting a blend of digital and practical training approaches.

## 8.SUGGESTION

1. Expand hands-on practical training modules, as it is the most preferred and effective method among employees.
2. Develop foundational troubleshooting programs tailored to less experienced employees, who show the most improvement post-training.
3. Create advanced technical modules for employees with 3–5 years of experience, who exhibit the highest benefit from training.
4. Continue offering online training (e.g., via the I Training website) to support flexible and accessible learning alongside practical sessions.
5. Use feedback and performance data to regularly update training materials, ensuring relevance and engagement across all experience levels.

## 9.CONCLUSION

The study confirms that technical training is positively correlated with improvements in troubleshooting performance, particularly among less experienced and mid-level employees. While structured training and resource use perceptions are consistent across groups, hands-on and frequent training methods prove most effective. This highlights the importance of experience-specific, blended training approaches. Organizations should continue investing in structured, practical, and adaptive training programs to support workforce development and maintain high technical standards.

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