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# EMPLOYEE'S PRODUCTIVITY IN AUTOMOBILE INDUSTRY

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**Abstract**— The motivation behind this paper is to analyze the effect of training on employee's productivity in Automobile Industry. All the more explicitly in the momentum research we might want to investigate and analyze the effect of training on employee's productivity in Automobile Industry by making a relative report in various auto portable enterprises. This paper manages the hypothetical issues that comprise of the examination plan and information investigation of the current examination 'impart of preparing on worker's profitability in Automobile Industry'. It is focusing and clarifying testing approach, description about the research factors (independent and dependent factors), hypothesis and response rate, chose estimation instrument, data collection technique and data analysis.

**Keywords**— ANOVA, Regression, productivity, training

## I. INTRODUCTION

In this study, effect of training on employee's productivity in Automobile Industry was inspected and for the sake of detailed comparative investigation two heavy vehicle part manufacturing industries were chosen. As far as possible was set to Gwalior area and the significant Automobile Industries are situated in MIDC, Gwalior, we have selected Vishal Industries and Shri Laxmi Industries. Keeping in see the objective of the investigation, review of existing literature and hypothesis framed, there are five significant zones to look at in this research:

1. First region of research was the scientific and hypothetical study of the employee training and productivity in Automobile parts Industry.
2. Second territory of exploration was the analytical and theoretical determination of the effect of training on worker's productivity.
3. The third region of research and the center of this examination were to make a similar investigation of the effect of training on employee's productivity.
4. In the fourth area of research, a model was set up to clarify the effect of training on worker productivity.
5. The fifth area of examination was to decide how the relationship model could be utilized by the specialist and the

academic to grow better productivity through employee training.

## II. REVIEW OF LITERATURE

**Islam et al (2011)** found in his investigation on Effect of Demographic Factors on E-Learning Effectiveness in A Higher Learning Institution in Malaysia, that the degree of training, program of study, age and sexual orientation were seen as critical in the adequacy of e-learning. Be that as it may, race and conjugal status were found to have no critical impact on the viability of e-learning system.[1]

**Kawaguchi (2006)** investigated the impact of hands on training on the productivity of 937 female laborers. He dissected that full time female specialists with more grounded instructive foundations are bound to take an interest in firm-started training exercises and furthermore training investment and productivity alongside wage are decidedly related. The examination demonstrated that the correlation among training and productivity of female representatives was 0.68 in the wake of controlling for endogenous factors. [2]

**Soobaroyen, Poorundersing (2005)** inspected the adequacy of training programs for practical administrators in assembling organizations of Mauritius, They laid the hypothesis that positive correlation among training and productivity of representatives is found in assembling firms. Utilizing overview data and regression way investigation their discoveries recommended that training had direct effect on quality and administrative productivity and performance. [3]

**Khanderkar and Sharma (2005)** in their investigation found a positive effect of training on learning and productivity of workers in Indian assembling firms. Survey strategy was utilized to gather data and rates though implies, cross organization, Pearson's correlation, single direction investigation of difference, were utilized for data analysis.

The current research is identified with Automobile Parts Industry. This defines the exploration unit of investigation among employees of Indian Automobile Parts Industry. The target population is defined as the total groups of specific population elements relevant to the research group.[4][28]

**Elizur and KoslowsJty (2001)** analyzed the correlation between work values, sex and authoritative responsibility. A directed regression investigation demonstrated that work values particularly the psychological ones were decidedly



related with duty and the correlation of qualities with gender orientation was likewise seen as a significant indicator of commitment.[5]

Regression investigation is a strategy of functional relationship utilized for expectation. A basic regression investigation was done. In basic regression investigation the estimation of dependent variable depends on the estimation of independent factor. It is helpful in analyzing the relationship between a single dependent variable and independent factor.[6]

The respondents were selected on the comfort sampling design. Comfort sampling is utilized in research where the researcher is keen on getting a reasonable method of guaranteeing adequate quantities of the investigation [7] and roughly of reality [8]. Considering the burden of the employees and trouble of data collection the target was set to 400.

### III. PROPOSED ALGORITHM

Research design is an frame work or plan for an analyst to answer research issues that is utilized to manage the technique and strategies of data collection and analysis.[25][26][27]

The current research is identified with Automobile Parts Industry. This defines the exploration unit of investigation among employees of Indian Automobile Parts Industry. The target population is defined as the total groups of specific population elements relevant to the research group.[28]

#### A. QUESTIONNAIRE DESIGN

- i. DEMOGRAPHIC DATA
- ii. INSTRUMENTS

#### B. DATA COLLECTION METHOD

#### C. TOOLS FOR DATA ANALYSIS

The result of the overview was coded and taken care of in to the excel sheet. Subsequent to gathering and coding, data was prepared for statistical analysis. For analysis SPSS 20 statistical package was utilized. At first all data was imported into SPSS from excel sheet and afterward arrangement of analysis are applied. So as to accomplish the particular research objectives, investigation is made on the sample characteristics of the dependent and independent factors just as the hypothesis produced by using the accompanying differing statistical techniques.

##### i. RELIABILITY AND VALIDITY ANALYSIS

The Reliability of the items is surveyed by processing the coefficient alpha and split half worth which quantifies the interior consistency of the things of the scale. To test dependability, a Cronbach coefficient alpha was utilized as it is the broadest and fitting strategy utilized for evaluating the unwavering quality for an estimation scale [9]. For a develop/ measurement to be considered reliable and adequate coefficient alpha of the scale ought to be above 0.7 out above 0.6 for new scale is additionally satisfactory. [10][11][12]

Validity of a scaling methodology suggests that the information must be unprejudiced and applicable to the trademark or build being estimated. In this manner, legitimacy is profoundly connected with the believability of an exploration.[13]

##### ii. DESCRIPTIVE STATISTICS

Descriptive Statistics are numbers that are utilized to sum up and depict data. "Data" refers to the information that has been gathered from an investigation, a study, a verifiable record, and so forth. Descriptive Statistics is the order of quantitatively portraying the fundamental highlights of an assortment of data [14], or the quantitative description itself.

##### iii. CORRELATION ANALYSIS

Correlation is method of measurably estimating the quality of direct relationship between the two arrangements of information. Correlation analysis endeavors to decide the level of Correlation between factors. One exceptionally helpful and valuable method of deciphering the estimation of coefficient of relationship between's two factors is to utilize the square of coefficient of Correlation, which is called coefficient of assurance. The coefficient of assurance in this manner rises to  $r^2$ . In the event that the estimation of  $r = 0.9$ ,  $r^2$  will be 0.81 and this would imply that 81 percent of the variety in the needy variable has been clarified by the free factor

##### iv. REGRESSION ANALYSIS

It was normal that any relationship recognized between independent factors and the reliant variable would be straight.

##### v. ANOVA

Analysis of variance (ANOVA) is an assortment of measurable models used to analyze the distinctions among group implies and their related systems, for example, "variation" among and between groups which is created by analyst and developmental researcher Ronald Fisher. To play out an ANOVA, a persistent reaction variable is must and at any rate one all out factor with at least two levels. ANOVAs require information from around typically circulated populaces with equivalent changes between factor levels. Be that as it may, ANOVA method works very well regardless of whether the ordinariness suspicion has been abused, except if at least one of the dispersions is exceptionally slanted or if the changes are very extraordinary. Changes of the first dataset may address such infringement.

##### vi. STUDENT'S T TEST

"Student" (genuine name: W. S. Gosset [1876-1937]) created statistical strategies to take care of issues began in his work in a distillery. T-test is a statistical exit country for looking at the real distinction between two methods in Correlation to the variety in the data. T test is a statistical theory test which follows a Student's/ - dissemination under the invalid speculation. In most social exploration, by "dependable guideline" set the alpha level at .05.

### IV. EXPERIMENT AND RESULT

#### A. RELIABILITY AND VALIDITY OF SCALES



Reliability involves a specific method applied over and again to same object yield similar outcomes each time [15] and it is built up by testing for both consistency and stability.[16] The reliability of the things is evaluated by processing the coefficient alpha and split half value which quantifies the internal consistency of the things of the scale.

Validity of a scaling method infers that the data must be unprejudiced and pertinent to the trademark or develop being estimated. Diverse validity things are utilized to show different parts of validity. The kinds of validity which are by and large referred in research writing incorporate face or content, model and construct validity.[17][18][19][20]

**Table 1 Mean and Standard Deviation**

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Trg	290	2.14	4.86	3.8192	0.53.990
Prd	290	1.57	4.9.3..	3.83.66	0.55462
Valid N	290				

**i. Reliability of Measurement Scales**

In this investigation, two internal consistency evaluations of reliability, to be specific. Cronbach's alpha and split-half coefficient communicated as Spearman-Brown revised correlation were registered for both Training (Trg) and worker's productivity (Prd) constructs.

For the split-half coefficient, each develop was split into two halves with the end goal that the two halves would be as proportionate as could be expected under the circumstances; Cronbach's study in 1943 cited in [21] expressed that '....Lie split yielding the highest correlation usually gives the most about practically identical parts.

**Table 2: Cronbach's Alpha and Split-half coefficient**

Constructs	Cronbach's alpha	Split-half coefficient	No. of items
Trg	0.770	0.729	14
Prd	0.848	0.823	14

*Source: Composed by the researcher*

The general scale reliability was 0.770 for Trg and 0.848 for Prd, which shows that the scale displays high reliability. The investigation results are given above (Table No 2). A respondents' reaction to a particular item is the total of the genuine score and the error [22]. It gives a sign of how much correlation to expect between the current scale and all other potential scales measuring something very similar.

Among all the respondents' and over all components of Trg and Prd there is no sign that any one thing is random to the remainder of its scale and in this manner causing a lessening in the Cronbach's alpha value to such an extent that it should to be evacuated. Result demonstrates that all scale items seem, by all accounts, to be dependable.

**ii. Validity of Measurement Scales**

The list of homogeneity and internal validity of the Prd items were tried by point bi-sequential correlation. The coefficient of correlation between's actual performance and the scores on this scale was seen as 0.74 and the validity of Trg was

resolved with the assistance of two methods (1) face validity, and (2) empirical validity. It was found as 0.79 (Table No 3).

**Table 3: Showing Validity coefficient**

Constructs	Validity value	No. of Items
Trg	0.79	14
Prd	0.74	14

*Source: Composed by the researcher*

**B. ANALYSIS OF COLLECTED DATA**

The collected data was organized and taken care of in to SPSS software for investigation. Series of Statistical tests were applied to get the significant outcome from the raw data. The outcomes got were interpreted and compared with the past examinations.

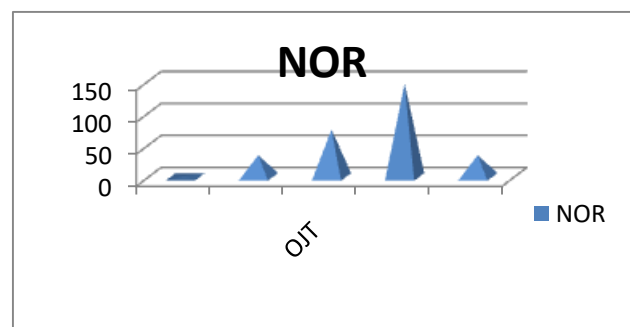
**i. Effective training methods in car parts industry**

There are essentially two classes of training techniques, On-the Job Training and Off-the-job Training. Each technique is applied for various sorts of training. According to the need of the training, the technique whenever chose and followed. It is seen from the Table No 4 that Coaching/Mentoring and OJT methods are more compelling than different techniques utilized via Automobile Part Industry (see figure 1 given underneath).

Straightforward Coaching/Mentoring is least compelling than Classroom Training and On-Job Training (OJT) techniques embraced via Automobile Parts Industry.

**Table No 4: Training Methods embraced in Automobile Industry**

Methods Name	NOR
Coaching/Mentoring	2
Class Room Training	34
OJT	74
Coaching/Mentoring + OJT	146
Class Room Training + Coaching/Mentoring + OJT	34



**Figure 1: Training Methods adopted in Automobile Industry NOR**

**ii. Employee's training responsibility level in automobile Parts industry**

Without responsibility, the execution of new thoughts and initiatives will be compromised (see Ramus and Steger 2000 referred to in Jaw and Liu, 2004). Human resource framework can encourage the turn of events or authoritative abilities through inspiring employee's commitment to the firm.[23]

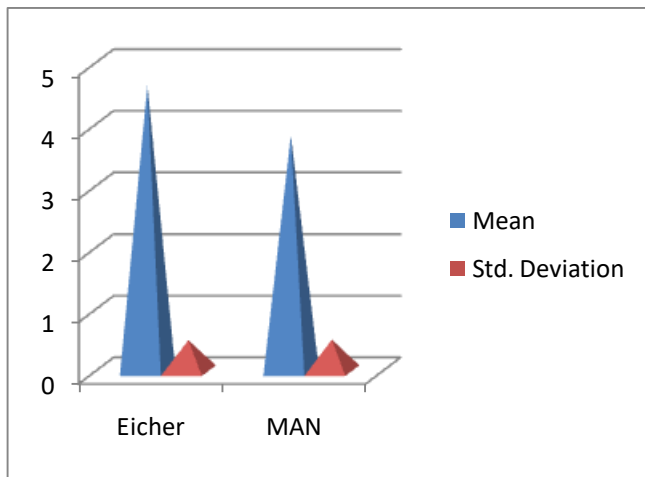


Consequently organizations with a fit business system, structure and practices help strategy may perform better. Endorsed "responsibility" as an unmistakable methodology for HRM whose beneficial outcome will be felt. The issue will undoubtedly disturb with the passage of more vehicles, new segment makers, complex and high innovation items. [24] Vishal Industry has its own training place - Vishal training focuses – to give training to their representatives. The training need investigation is finished with the assistance of the yearly work plan (YWP), which gives the competency level of representatives. The training schedule is prepared as indicated by the performance assessment and development plan so the representatives can be set up ahead of time to take up the new difficulties. Workers are motivated go to the training programs for the individual, word related and the organizational development.

**Table No 5: Employee's training responsibility level**

Training/ Industry Type	N	Mean	Std. Deviation
Vishal Industry	145	4.6286	0.49366
Shri Laxmi Industry	145	3.8169	0.50285
Valid N	145		

Mean and Standard deviations were calculated in relation to Vishal Industry and Shri Laxmi Industry (see Table No 5). It is found from the analysis that total mean score of Trg. level among the employees' working in Vishal Industry was high as compare to Shri Laxmi Industry (Figure 2).



**Figure 2: Employee's Training Commitment Level**

**iii. Correlations Investigation**

Correlation is strategy of statistically estimating the strength of linear correlation between the two arrangements of data. Correlation investigation endeavors to decide the level of relationship between factors. One advantageous and helpful method of deciphering the estimation of coefficient of correlation between's two factors is to utilize the square of coefficient of correlation, which is called coefficient of determination.

The coefficient of determination consequently approaches  $r^2$ . On the off chance that the estimation of  $r=0.9$ ,  $r^2$  will be 0.81 and this would imply that 1 percent of the variety in the needy variable has been clarified by the independent factor. All the factors were normalized and Karl-Pearson's coefficient of correlation was done.

**Relationship between Training and Employee's Productivity in Automobile Parts Industry**

It is seen from the beneath Table No 6 that the estimation of Karl-Pearson s coefficient of correlation is 0.739. It demonstrates that training and representative's productivity have a positive and highly significant relationship at 14, level of significance.

In this manner, it is concluded that the training and representative's productivity comprises of highly positive and significant relationship for chose Indian Automobile parts industry.

**Table No 6: Relationship among training and representative's productivity**

Variables		Trg	Prd
Trg	Pearson Correlation	1	0.739
	Sig. (2-tailed)		0.000
Prd	Pearson Correlation	0.739	1
	Sig. (2-tailed)	0.000	
N		290	

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

**Table No 7: Impact of training on employee's productivity**

<b>R2</b>	0.546				
<b>Adjusted R2</b>	0.544				
<b>Std. Error of the Estimate</b>	0.67485450				
<b>ANOVA (F)</b>	346.379		Significance = 0.000		
<b>Dependent Variable:</b> Employee's Productivity (Prd)	Un-standardized Coefficients		Standardized Coefficients	't' sat	Sig
<b>Independent Variables</b>	B	Std Error	$\beta$		
<b>Constant- Intercept</b>	2.889	0.040		0.000	1.000
<b>Training (Trg)</b>	0.739	0.040	0.739	18.611	0.000
<b>Excluded Variables</b>					

From the Table No 7, it is discovered that the capture is little and statistically insignificance. This suggests there is no extension of independent worker's productivity.

The outcomes are given in the Table No 8 end Table No 9. From Table No 5.8, it is discovered that the R square is 0.598 in Vishal Industry. This shows the determination power of the regression condition is about 59.8 percent. This shows that training clarify 59.8 percent variety of employee's productivity in Vishal Industry.

**Table No 8: Impact of training on worker's productivity in Automobile part Industry (Vishal Industry)**

<b>R2</b>	0.598
<b>Adjusted R2</b>	0.596
<b>Std. Error of the Estimate</b>	0.63591379



ANOVA (F)	213.095		Significance = 0.000		
Dependent Variable: Employee's Productivity (Prd)	Un-standardized Coefficients		Standardized Coefficients	't' sat	Sig
Independent Variables	B	Std Error	$\beta$		
Constant- Intercept	-2.094E-15	0.053		0.000	1.000
Training (Trg)	0.774	0.053	0.774	14.59	0.000
Excluded Variables					

Table No 9: Impact of training on employee's productivity in Automobile Part Industry (Shri Laxmi Industry)

R2	0.478				
Adjusted R2	0.474				
Std. Error of the Estimate	0.72526574				
ANOVA (F)	130.759		Significance = 0.000		
Dependent Variable: Employee's Productivity (Prd)	Un-standardized Coefficients		Standardized Coefficients	't' sat	Sig
Independent Variables	B	Std Error	$\beta$		
Constant- Intercept	-6.37E-16	0.060		0.000	1.000
Training (Trg)	0.691	0.060	0.691	11.43	0.000
Excluded Variables					

Further, it might be concluded that the training has positive and significant effect on employee's productivity in Vishal Industry than Shri Laxmi Industry.

### C. HYPOTHESIS TESTING

H01-There is no significant difference among the employee's training duty level in Vishal Industry and Shri Laxmi Industry

Hoi.1-Gender wise there is no significant difference among the employee's training duty level in Vishal Industry and Shri Laxmi Industry

Hoi.2-Age wise there is no significant difference among the employee's training duty level in Vishal Industry and Shri Laxmi Industry.

Hoi.3-Marital status wise there is no significant difference among the employee's training responsibility level in Vishal Industry and Shri Laxmi Industry.

Hoi.4-Educational qualification wise there is no significant difference among the employee's training responsibility level in Vishal Industry and Shri Laxmi Industry.

Hoi.5-Working experience wise there is no significant difference among the employee's training duty level in Vishal Industry and Shri Laxmi Industry.

Hoi.6-Designation wise there is no significant difference among the employee's training responsibility level in Vishal Industry and Shri Laxmi Industry.

It is found from the Table No 10 that the estimation of f detail is significant; at 1 percent level of significance, not accepting

the Hoi.1(hypothesis which suggests that Gender wise), Hoi.2 (null hypothesis which infers fiat Age wise), Hoi.3 (null hypothesis which suggests that marital status wise), Hoi.4 (null hypothesis which suggests that Education qualification wise), Hoi.5 (null hypothesis which suggests fiat Working experience wise) and Hoi.6 ( not accepting the null hypothesis which suggests that Designation wise) there is significant difference among the employee's training responsibility level in Vishal Industry and Shri Laxmi Industry.

### H02-There is no significant relationship among training and employee's productivity in Automobile Parts Industry.

The coefficient of correlation among training and employee's productivity is positive and exceptionally significant at 1% level of significance. The estimation of Karl-Pearson's coefficient of correlation is 0.739 (P 0.001). Consequently, the null hypothesis is rejected and it suggests that training and employee's productivity are closely related with one another.

Table No 10: Demographic Factors Level in Vishal Industry and Shri Laxmi Industry

Profile	Industry Type	Mean Value	T Value	P Value
Gender	Vishal Industry	11.4	6.498	0.001
	Shri Laxmi Industry	13.13		
Age	Vishal Industry	11.74	6.316	0001
	Shri Laxmi Industry	12.86		
Marital Status	Vishal Industry	1128	5.775	0.002
	Shri Laxmi Industry	1186		
Education Qualification	Vishal Industry	12.20	6.199	0.002
	Shri Laxmi Industry	12.71		
Working Experience	Vishal Industry	10.50	4.877	0.005
	Shri Laxmi Industry	12.20		
Designations	Vishal Industry	10.93	4.681	0.005
	Shri Laxmi Industry	11.67		

\*\*Significant at the 0.01 level (2 tailed) & 1 Significant at the 0.05 level (2 tailed),

(Source: computed for the research)

### H03-There is no significant effect of training on employee's productivity in Automobile Parts Industry.

The coefficient of training is positive. The't' detail is 18.611 (P 0.001). The determined 'f' ratio detail value of coefficient of training is more prominent than the table value. Thus, the null hypothesis is rejected at 1 percent level of significance. Subsequently, the training has significant and positive effect on employee's productivity of Automobile parts industry.

The summary of the Hypothesis testing is appeared in Table No 11

Table No 11: Hypothesis testing result

#	Hypothesis	p value	Significance	Remark
H01	There is no significant difference among the employee's training commitment level in Vishal & Shri Laxmi			
H01.1	Gender wise there is no significant difference among the employee's training commitment level	0.001	Significance difference	Hypothesis not accepted



	in Vishal & Shri Laxmi			
H01.2	Age wise there is no significant difference among the employee's training commitment level in Vishal & Shri Laxmi	0.001	Significance Difference	Hypothesis is not accepted
H01.3	Marital status wise there is no significant difference among the employee's training commitment level in Vishal & Shri Laxmi	0.002	Significance Difference	Hypothesis is not accepted
H01.4	Educational qualification wise there is no significant difference among the employee's training commitment level in Vishal & Shri Laxmi	0.002	Significance Difference	Hypothesis is not accepted
H01.5	Working experience wise there is no significant difference among the employee's training commitment level in Vishal & Shri Laxmi	0.005	Significance Difference	Hypothesis is not accepted
H01.6	Designation wise there is no significant difference among the employee's training commitment level in Vishal & Shri Laxmi	0.005	Significance Difference	Hypothesis is not accepted
H02	There is no significant correlation between training and employee's productivity in Automobile Industry	<0.001	Significance Difference	Hypothesis is not accepted
H03	There is no significant impact of training on difference not employee's productivity accepted in Automobile Industry.	<0.001	Significance Difference	Hypothesis is not accepted

The outcomes demonstrated that there is a correlation among Training and Employees Productivity. It likewise avowed that there is a significant and positive effect of Training on Employees Productivity. The comparative investigation indicated a slight difference in the effect of framing on Employees Productivity among the two organizations chose with the end goal of this study.

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The inventive advances and progression, competitor from different firms, and the interest for ultra-modern items by clients power the Automobile parts business to stay up with the latest for acknowledging any demands. As the speed of the mechanical headway expanded and the data arrange got single base, the globe is turning into a little town were all are entomb associated and inter related.

Undoubtedly in the automobile parts business there can be seen a tremendous enhancement because of the tremendous innovative utilization. The Human Resource Management system of Indian Automobile parts industry has transformed from the mechanical and specialized situated training technique to a multi-disciplinary industry which is prompting a broadened training stage.

## V. CONCLUSION

This part has managed whit the data investigation and understanding, it has analyzed all the hypothesis framed and furthermore attempted to satisfy the entire framed objective.



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