

## **An Objective Analysis of the Effect of Employee's Engagement in the Automobile Sector in Punjab**

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### **Abstract**

An employee holds a key position in any organization or firm. The healthy relationship between the working section and the management directly decides the turnover and organizational growth. In the paper, author evaluated the effect of employee engagement to enhance the quality of work in the light of self-motivational strategies Author covered perceived supervised support and job characteristics along with factor like physical, emotional and cognitive employee engagement. Statistical analysis of the responses of employee working in the automobile sector in Punjab area was compared and analysis in terms of mean value, standard deviation, skew, mode, kurtosis and Cronbach alpha. The statistical analysis results in high means score obtained against positive recognition of employee in automobile sector. It was established that employee working in the automobile sector own a strong positive bond with their employee that led to effective employee organization relationship (EOP).

**Key words:** *Employee Engagement, Automobile, EOR.*

### **1. Introduction**

Employee's Engagement (EE) refers to the act of the employee in any organization. This cannot be directly referred to as the happiness of the employee in the organization. Being happy at work enhances the work quality for sure but it is not necessary that a worker who is not as happy as any other worker will necessarily produce bad quality output. There are lot of aspects of EE including the behavior of supervisors, the environment of the workplace, the acting process of the co-workers and appreciations [1-4]. This paper uses scientific manner to calculate the effect of the Employee's engagement in the retention of the employee and the work quality produced by the employee for the automobile industry of Punjab. The EE can be physical, mental or Cogitative. The physical engagement may involve a lot of task. Whatever an employee performs in the office or in workshop, starting from monitoring the co-worker's process, completing given assignment or performing any technical aspect involves physical activities as shown in Figure 1.

The automobile sector is one of the major contributors of the Indian economy and also involves a lot of physical labour despite of the fact that most of the works are now machine based. The combined influence of physical engagement is better reflected by health and performance level [5]. Another aspect which has been observed here is that, an old employee who has a lot of working experience, falls short of technical knowledge of machines, fails to deliver the desired outcome. This not only reduces the EE but also demoralizes the employee's working ability. To prevent the automobile industry from such kind of mental hazards, the employees are subordinated with technical supervisors or they are sent for technical trainings. The willingness to adopt new things at work is termed as Cognitive Engagement (CE). Talking about mental hazards, EE also has a Mental Engagement (ME) component. "ME" refers to the collaboration of employee's physical work with its mental happiness regarding the same [6].

An employee's ME can be affected due to the following reasons.

- a) Behavior of Co-workers
- b) Work Environment
- c) Acting Supervisor
- d) Social Impact of the job position

It is observed that most of the time, if the social impact of the employee's job is not up to mark, he feels ashamed and in several cases the employee results into quitting the job or falling short in delivering the performance. It is not just the case of automobile industry but also in any other industry. As for example, if a foreman lives in a society where the industry managers are also living, the kids of the foreman will always feel awkward and it will further result into mental harassment

of the foreman. Fighting with the mental issues of the social behavior, the behavior of the supervisor may result into a mental blast for the foreman. Effects of mental engagement are shown in figure 2.

The engagement of the employee is an area which has gained a lot of attention in every industry. IT Companies organizes tours and trips, mechanical industry organizes dance programs or some traditional “Pooja” to boosts up the mind of the employee so that he or she can perform well. It is also observed that the EE is differs as per the gender as well. The EE for male could be different from the female. Female employees have different kind of issues socially, mentally and physically as well [7]. One of the major issues which women face during the job is the timing. Especially in case of automobile industry, the women are required to be home before a time which is considered to be safe as per her family.

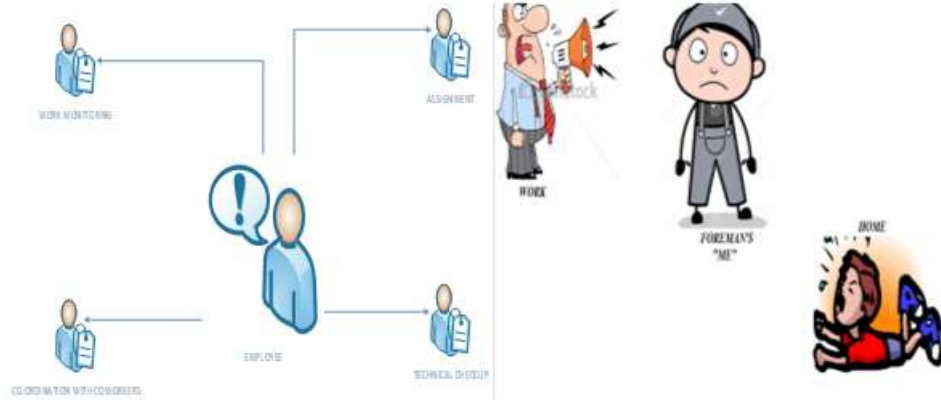


Fig 1. Physical Engagement

Fig2. Physical Engagement

As shown in Figure 3 apart from the job, a woman has other job also at home which is cooking food, taking care of her kids and looking after the husband. India faces a lot of egoistic issue when it comes to allowing a female to go to work and it gets worse when it comes to physical labour [8]. Women often face sexual harassment at work-place and are observed to be common in Indian work places. Serious firms are established to control this issue in any industry but somewhere in the mind of a women worker, this point strikes and she always aims to be at home at time. It harms the women physically and mentally as well.

The contribution of this paper is the scientific calculation of EE in order to prevent the automobile industry from employee loss or to prevent the employee from reduced quality production. This paper presents the study of relevant factors which effects the EE for the automobile sector. In addition to that, the impact of EE over the job satisfaction is also analyzed through various test results.

The rest of the paper is organized in the following manner. Section 2 illustrates the literature survey whereas section 3 represents the materials and methods of the analysis of the EE. Section 4 evaluates the results and Section 5 concludes the paper.



Fig 3. Issues with Women affecting her EE

## 2. Literature Survey

The term employee engagement has been widely used since the employment sector came to existence. It has been an all-time trending and hot research area that has seen surprisingly enhancement.

Crawford et al. 2010 studied the employment sector while focusing the rising demand for jobs. They also paid high attention towards the irregularity of the employment sector to balance between the hot areas of employee engagement and job demands. An improved model was presented based on the meta-analytic structural design. The authors established a few relationships as an outcome of their research study. They concluded that as the demand rises there is increased pace of exhaustion which is reciprocal with the availability of the resources. The authors also concluded that employee engagement and job demands are very versatile nature and changes with time and resources [9].

Christian et al. in 2011 moulded their study to offer a well-defined explanation of employee engagement. While focussing the term employee engagement, it was considered indispensably important to mark out the kind of engagement one was thinking about. When work demanded the craving to commit physical, cognitive, and emotional resources to one's work then determination was required to devote physical, cognitive, and emotional resources towards the task engagement. The testing of the third party was performed by utilizing meta-analytic method to elucidate the relationship between job performance and previous circumstances. It was concluded that work engagement holds a very unique position that deserves constant attention in future [10].

Schaufeli and Salanova in 2011 discussed various issues adjoining the concept of work engagement. Infact, workplace comprised of numerous tasks and therefore engagement totally depends on the worker willingness to perform that particular task. It was also studied as a concept called the task engagement. For instance, university professor engaged for teaching and delivering lectures gets detached to commit a task when demanded for other department or university. While discussing such instances, authors offered vital contribution to clarify the concept of work engagement and opened doors for future research paradigm [11].

Cole et al. in 2012 considered job stress an important and keenly related concept that had shown tremendous rise over the years. Unwilling employee engagement usually led to the existence of job stress or the concept of burnout. In addition to this, job uncertainty, disagreement and work overload also led to burnout issues. Authors had discussed concepts, employee engagement and job burnout in details.

They concluded that there had been a high dimensional relationship between the two concepts and the meta-regression could successfully deal with the dimension or extent of their association. Moreover, the practical aspects of job burnout and employee engagement cannot be left unattended [12].

Vigoda-Gadot et al. in 2013 conducted the research to explore the idea of employee engagement and its possible reflection on public management. Employee engagement usually comprised of positive motivation, dedication, mutually beneficial relationship and constructive state of mind. The study involved job involvement and affective commitment as two important concepts in order to launch a constructive employee and organization relationship. The research was conducted on 593 samples that comprised of interactive data of employee and managers from both private and public sector. Authors concluded that public sector showed high employee engagement as compared to private sector employees [13].

Saks and Gruman in 2014 presented a review of studies published on the concept of employee engagement. The authors summarized the concepts of Kahn's theory and job demand-resource design for employee engagement. It was established that harmony between meaning and validity of apt channels related to employee engagement was missing among various studies. As such numerous paradigms remain untouched that required more research and development in the coming times [14].

Eldor and Vigoda-Gadot in 2017 researched the rising popularity of employee engagement among firms, industries and academia. This concept offered detailed insight into the employee's interest, belief, readiness, strengths and capabilities. The authors provided a compare and contrast of employee's psychology that could lead to the empowerment. The study was conducted using 593 samples of working class belonging to public and private sector. It was established that psychological strengthening and employee engagement are two different aspects and covered a depth debate under the hot topic of complex employee and organization relationship [15].

Bailey et al. in 2017 conducted a research study to develop a consistency among the subtle literature that dealt with the employee engagement. In the process, authors conducted a literature survey in the light of descriptive facts consisting of 214 research studies that were dedicated to the concept of engagement adjoining work engagement along with job-demand and resource management. In the survey, factors like job design, work organization, employer interventions, and employee's psychology were keenly discussed. It was found that employee engagement had a positive effect on employee's capabilities and vigour to perform their job efficiently. The motivational behaviour played an important role in the organizational management. In the light of evidence based study authors proposed that it is critical to integrate

psychological and sociological aspects of employee engagement to fill the research gaps. It can be summarized that employee holds a key position in any organization [16].

Kang and Sung in 2017 analysed the effect of organizational internal communication standards over the employees' engagement and belief in the employer. The evaluation was also done while intervening the quality of employee-organization relationship over a randomly selected sample of 438 sales representatives. The structural model was proposed that involved statistical analysis and structural modelling in which testing was done using latent variables. The study established that employee engagement had a strong association with internal communication. Also, it was demonstrated that employee engagement motivates a compassionate behaviour while diminishing negative intentions. Authors confirmed that their research successfully dealt the indispensable role of employee engagement in the development of constructive employee communication [17].

Rao in 2017 recommend tools and designs to encourage employee engagement. His study was mainly focussed to enumerate the causes that result in employee disengagement. The positive aspects and merits of employee engagement along with negative effects of employee disengagement were also discussed. In the process, illustrative highlights of over the globe organizations namely, DHL Express, Google, Cummins, Virgin and Southwest Airlines were also included. It was established that employee engagement is a two way process where positive waves should flow between organization and employee for the establishment of a constructive environment. The proposed tools could be universally applied to any organization irrespective of its size [18].

Kulikowski in 2017 was greatly inspired with the rising popularity of work engagement that had could successfully predict the health of an organization. In the present study, confirmatory factor analysis method was used to evaluate the factors in Utrecht Work Engagement Scale. It covered 21 research swots comprising factorial validity of UWES-9 and 17. It concluded that at times employee engaged in their respective work may not be able to dedicate his/her 100% like team member that could be dealt with the involvement of UWES questionnaire and lead for a constructive work environment [19].

Amarakoon et al. in 2018 considered various benefits offered by employee engagement study. The work worked on knowledge based technique in order to evaluate various sectors in order to evaluate the competitive performance level of various industries. Authors also addressed the adjoining limitations and proposed a new method to classify the nature of HRM innovations. To give competitive edge over the others, it provided customer satisfaction along with significantly improving the bottom line of various organizations [20].

Dhir and Shukla in 2018 roofed the direct and indirect influence of various demographic aspects over employee engagement and further discussed its effect on the employee's performance level. The factors majorly covered education, gender, age, marital status, management and organizational infrastructure and size. The study was conducted on a sample of 701 on job managers employed in India that belong to vivid sectors. The evaluation was based on the mean and cross tabulationbased comparison approach. It was established that employee's dedication to work was independent to the size of an organization [21]. Nikolova et al. in 2019 dedicated their research to critically examine relationship of employee engagement with job resources and leadership engagement. A Meditation design was proposed to establish relationship of leadership engagement with support and learning opportunities. Relationship between job-demand and job resource was also summarized. Authors tested their proposed design against the employees engaged in hotel in Netherlands. Cross-lagged assessment demonstrated a constructive association among leaders and employees for establishing a healthy work environment [22].

### **3. Methodology**

One of the major components of SACD is user data and data collection. The collected data is passed to the process engine and the result orientation is attained by judgement repository, lists down the best solutions, and produces the result based on the judgement repository.

#### **3.1. User Data**

The data collection is one of the major tasks in this process. The collection has been made from more than 20 automobile service centers. A repository of questions is created as a questionnaire which is asked from more than 1000 employees including junior level and senior level employees. A glimpse of the questionnaire is given in Table 1. The questions were answered in a scale of 1-10 from least to max.

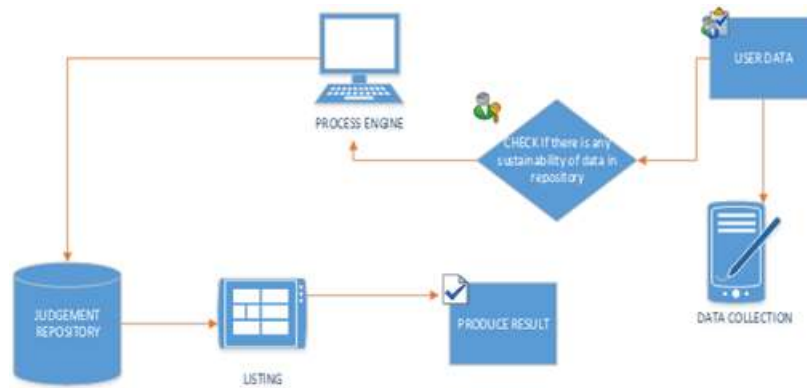


Fig 4. Process Engine SADC

Table 1: Questionnaire for Employees

<i>S.no</i>	<i>Questions</i>
1	I receive recognition for a job well done
2	I feel close to the people at work
3	I feel close to the people at work
4	I feel good about working at this company
5	I believe management is concerned about me
6	On the whole, I believe work is good for my physical health
7	My wages are good
8	All my talents and skills are used at work
9	I get along with my supervisors
10	I feel good about my job
11	My work excites me
12	My job gives me a lot of energy
13	My job fascinates me
14	My work makes me proud
15	I'm optimistic about my work
16	My work role excites me
17	My mind is concentrated on my task at work
18	I focus on my work a lot at job.
19	I concentrate on my duties at work
20	I pay close attention to what I'm doing.
21	I'm really engrossed in my work
22	I put a lot of effort into my work

The questions were asked to 800 employees including male and female employees. The distribution is listed in Table 2. Total 292 female employees were encountered with the question set in order to understand their aspect for the same. Though the processing percentage is less but it is also hard to find female employees in this business. It leads to an encounter of 508 employees as male candidates.

Table 2: The distribution of employees

Gender of the employees	Frequency	Percent
Male employees	508	63.50%
Female employees	292	36.50%
Total	800	100%

Maturity plays a vital role in the judgement making in automobile industry. A mature person regardless of the gender has different views as compared to an un-mature person. It is not compulsory that the maturity comes with age but still age puts its significant impact over a decision making. Table 3 illustrate the average age of the identities.

Table 3: Age Group of Candidates

Gender of the employees	Frequency	Percent
Less than 25 years	277	34.60%
25 to 40 years	339	42.40%
More than 40 years	184	23.00%
Total	800	100.00%

The maturity comes with job experience as well. Table 4 demonstrates the experience count of the desired candidates. The desired candidates possessed a minimum experience of 1 year and a maximum of 23 years. The proposed work divided the age group in three categories namely “Less than 10 years”, “10 to 20 years” and “More than 20 years”.

Table 4: Frequency distribution based on years of experience

Experience of the employees	Frequency	Percent
>10 years	323	40.40%
Between 10 to 20 years	322	40.30%
< 20 years	155	19.40%
Total	800	100

There are several sectors in automobile industry namely 2-wheeler, 4-wheeler, heavy vehicles like trucks, carriers and railways. It is difficult to cover the entire industry in one research work and hence the authors have considered two sectors namely the 2-wheeler and the 4-wheeler sector. Table 5 illustrates the identity specification for two wheelers and four wheelers.”

Table 5: Frequency distribution for 2-Wheeler and 4-Wheeler

Gender of the employees	Frequency	Percent
Working with two wheelers	511	63.90%
Working with four wheelers	289	36.10%
Total	800	100%

In addition to the questionnaire mentioned in Table 1, some additional questions were asked to the same identities in order to make sure that the predictions are done well.

Table 6: Additional Questionnaire

S.no	Question
1	My contributions towards the organization's success are valued
2	Any additional effort from me is not valued by the corporation
3	The organisation is genuinely concerned about my well-being
4	Although if I did my best stuff, the organization would not notice.
5	The company is concerned about my overall job happiness.
6	The company is least concerned about me.
7	Any complaint I made would be ignored by the organisation.
8	The company is proud of my achievements at work.
9	My boss shows interest in what I have to say
10	My manager has shown concern about my well-being.
11	My boss takes my objectives and principles very seriously
12	My supervisor shows very little concern for me (R)
13	My organization provides autonomy to work
14	I have large amount of variety in work
15	My job influences the lives and well-being of other people
16	My supervisor provides continuous feedback to me
17	I usually complete a whole piece of work
18	My job itself provides information about my work performance
19	My supervisor makes me feel that things you tell him/her are really important
20	Shows faith in your capacity to do the task
21	Motivates you to introduce new information to the discussion, even if it is unpleasant news
22	You feel free to talk to him/her
23	Understands your job problems
24	Makes it easy for you to do your best work

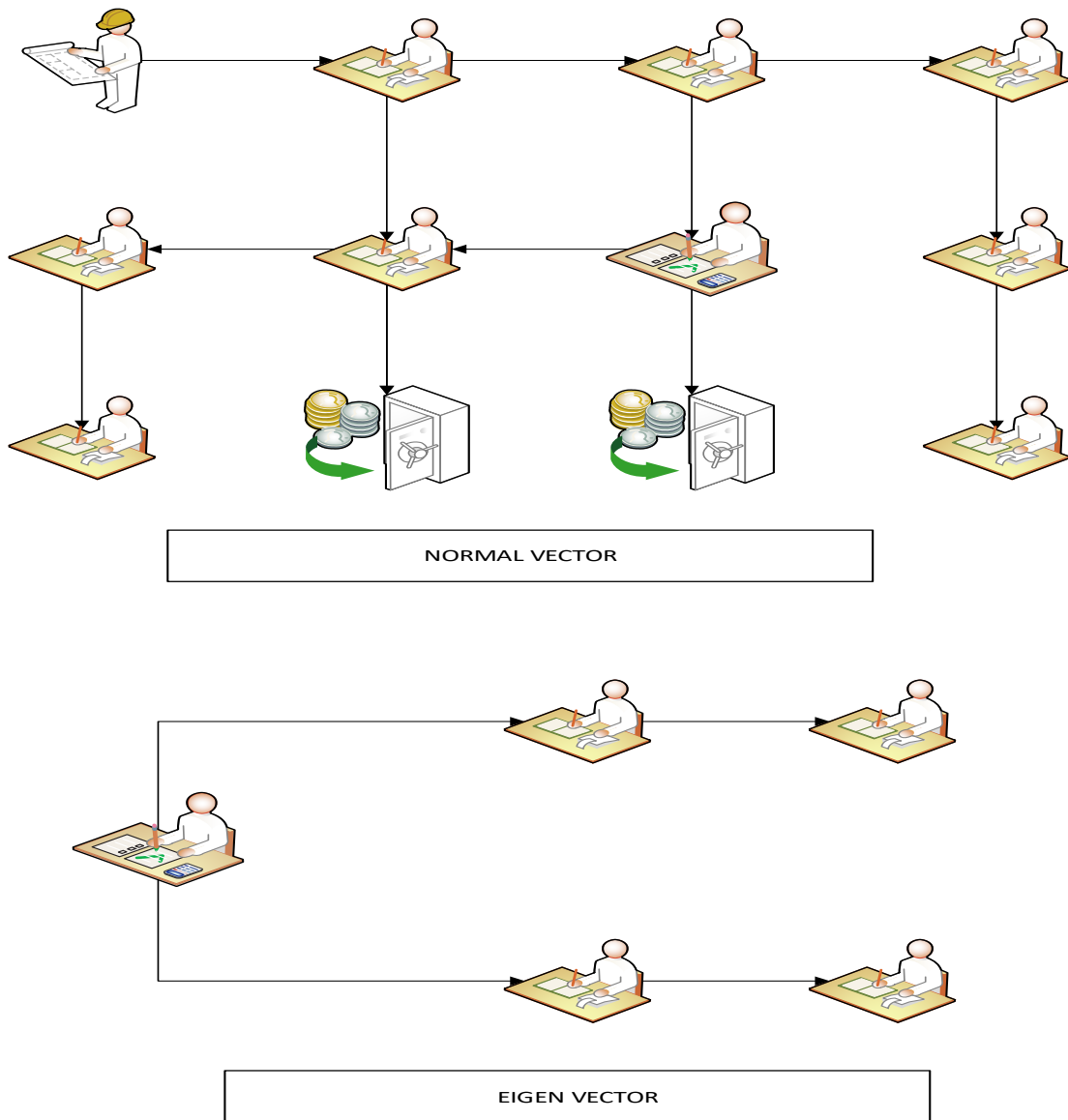


Fig 5. Eigen Vector Processing

### 3.2. Analysis Procedure

Principal Component Analysis (PCA) is applied over the answers of the desired candidates. The ordinal measures of PCA are as follows.

PCA was invented in 1901 by Karl Pearson. It PCA function returns the Eigen Vector related to principal components of every row in the processing. The Eigen Vector is the rotational vector of any data component as shown in Figure 5. The Eigen Vector of the processed data is the diagonal components of the given data based on the processing for 24 questions mentioned in Table 6, the following analysis is made and is illustrated in Table 7.

Table 7: Eigen Value Processing

TYPE	Average Initial	Average % of	Average Cumulative
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	Eigen Values	Variance	%
Initial Eigen Values	1.07581	4.48	81.02
Extraction Sum of Squared Loadings	4.1055	17.10625	53.20975
Rotation Sum of Squared Loadings	4.10575	17.10625	48.011

Variance is defined by Equation (1)

$$Variance(V) = (x_i - \frac{x_{\sum}}{n})^2 \quad (1)$$

### 3.3. Methods of Analysis

Based on the collected data, the following tests were also applied.

- a) Mean
- b) Mode
- c) Standard Deviation
- d) Skewness
- e) Kurtosis

• Mean: It is the average of the total supplied values over a given sample.

$$Mean(M) = \frac{\sum_{i=1}^n Value}{n} \quad (2)$$

Where n is total number of identities

• Mode: Mode is the ratio of maximum occurrence of an identity value to the total number of supplied values

$$Mode(M_x) = \frac{MaxOccuranceCount}{n} \quad (3)$$

• Standard Deviation (SD): It is the squared root value of the all data values to the average value divided to the total number of samples.

$$StandardDeviation(SD) = \sqrt{\frac{\sum((dvalue-M)^2)}{n}} \quad (4)$$

- Skewness: It is the dis similarity of the distribution over a given region in a data spread. The skewness can be of either sides namely the right hand side or the left hand side. If the skewness is bended towards the left hand side then it is termed as less than the median and on the other side if it is on the right hand side then it is termed to be higher than the median.
- Kurtosis: Differentiates the tail of the current distribution to the normal distribution of the same data.

In addition to this, the EE's impact over the job satisfaction is also calculated using the regression analysis. In order to calculate the same, physical components of the employees, emotional components and the cognitive components are passed to excessive regression analysis.

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#### 3.3.1. Regression

The regression(R) calculates the impact of one variable over the other variable in order to produce the result. In practical terms, the value of R lies between 0 to 1. Close to 1 value leads to high impact and close to 0 value leads to less impact. The presented architecture calculates the value of R for Mental Engagement (ME), Physical Engagement (PE), Social

Engagement (SE) and Job Satisfaction (JS) for both two wheelers and four wheeler automobile industries as shown in Figure 8. The null hypothesis of the proposed work is as follows.

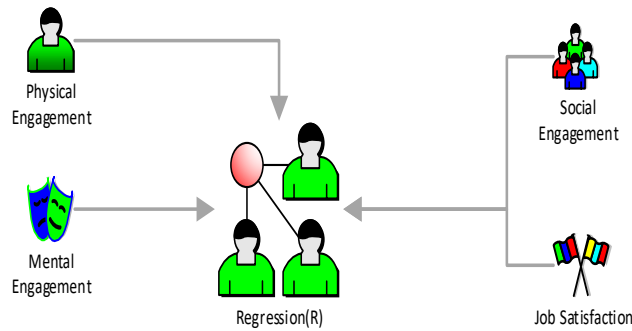


Figure 7. Regression

Null hypothesis: “There exists no significant difference between the different types of automobile sector companies (two wheeler and passenger cars) w.r.t the level of employee engagement, job performance and job satisfaction”.

#### 4. Results and Discussion

The results are evaluated considering various statements under different scenarios.

##### 4.1. Scenario 1

The first scenario is about Perceived Supervisor Support (PSS). The way a supervisor behaves with his/her employees. Different methods described in 3.3 are applied to calculate the effect of PSS over EE.

Table 8: Descriptive statistics- Perceived Supervisor Support

Statement	Mean	Standard Deviation	Mode	Skewness	Kurtosis	Cronbach Alpha
My boss shows interest in what I have to say	3.495	1.04772	1.04772	-0.453	-0.587	
My manager has shown concern about my well-being	3.7125	1.07831	1.07831	-0.638	-0.457	
My boss takes my objectives and principles very seriously	3.455	1.09589	1.09589	-0.401	-0.575	0.878
My boss is quite concerned about me	3.1425	1.19615	1.19615	-0.242	-0.901	

The responses against the statements of Perceived Supervisor Support are summarized in Table 8. The statements measuring the mean PSS exhibited the mean score >3. This indicates that the respondents working with automobile sector in Punjab possess a positive understanding with their employer. The statement “My supervisor cares about my well-being” holds the highest mean score of 3.7125, which means that the employees in this sector have a strong belief that their employer is greatly concerned with their health standards while working as true leaders. The next highest mean score of 3.495 corresponds to “My boss shows interest in what I have to say”. This indicates the existence of democratic infrastructure where employees are free to share their opinion in front of their supervisors.

The next high score of 3.45 represents “My boss takes my objectives and principles very seriously” statement which shows that the responders also believe that their employer provides due attention and respect towards their employee’s aims and moral values.

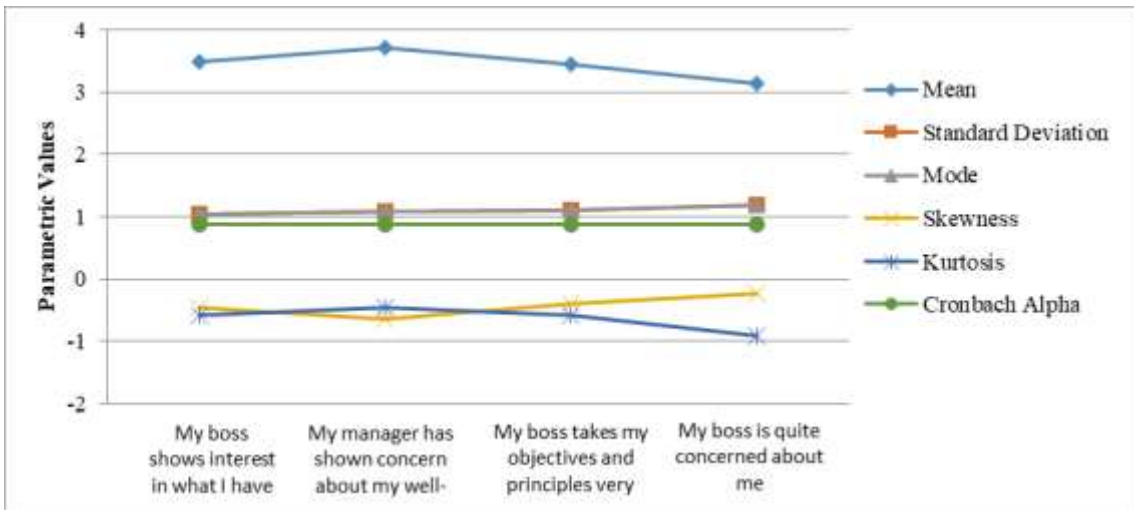


Fig 8. Perceived Supervisor Support

Table 9: Descriptive statistics- Job characteristic

Statement	Mean	Standard Deviation	Mode	Skewness	Kurtosis	Cronbach Alpha
My organization provides autonomy to work	4.055	1.01219	5	-0.985	0.322	0.902
I have large amount of variety in work	3.825	1.09881	4	-0.776	0.239	
My job influences the lives and well-being of other people	3.69	0.98301	4	-0.635	0.141	
My supervisor provides continuous feedback to me	3.875	1.08504	4	-0.755	0.269	
I usually complete a whole piece of work	3.74	1.12497	4	-0.568	0.73	
My job itself provides information about my work performance	3.8725	1.17674	5	-0.882	0.159	

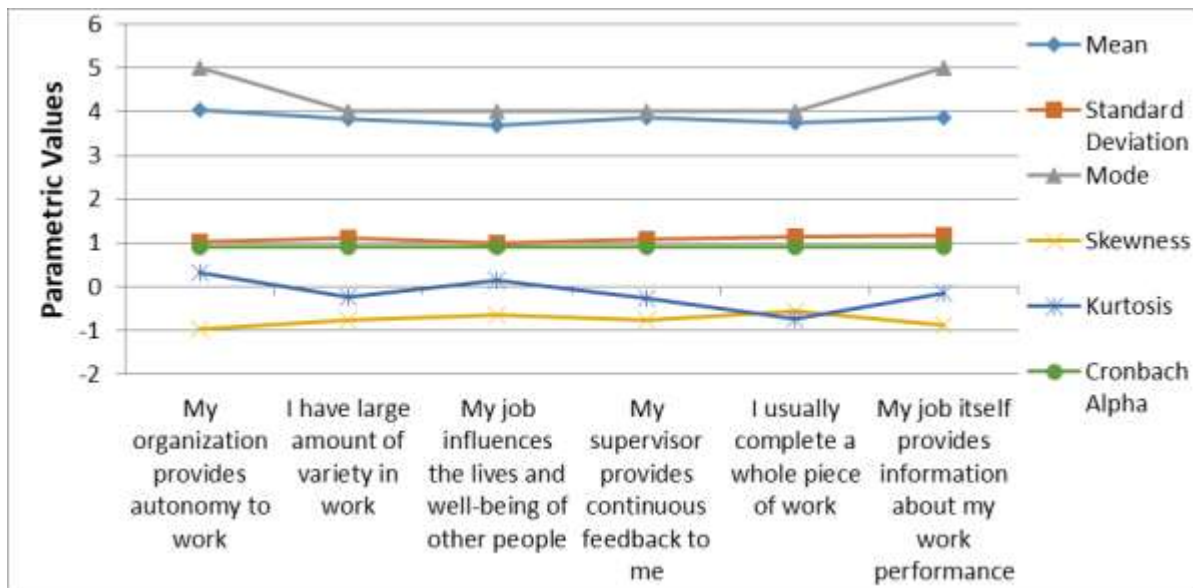


Fig 9. Descriptive statistics- Job characteristic

The mean distributions along with other evaluation parameter are plotted in Figure 9. The results also exhibited negative skewness of the responses which means that the graph have data that has tailing towards the left side. As also shown in Figure 9, both Skewness and Kurtosis possess negative values that indicates that the distribution of the responses possess a flatter graph than a normal distribution graph. The figure indicating the mean score of different statements of PSS is shown below in figure. It is also found that Cronbach Alpha exhibited a stable value of 0.878 that indicates a good reliability of the factor.4.2 Scenario 2

#### 4.2 Scenario 2

Descriptive statistics also evaluated job characteristics with the help of 6-statements mentioned in Table 9. The resultant responses scores are summarized below. It is observed that the job characteristic statement “My organization provides autonomy to work” exhibited the highest mean value of 4.055 that indicates that the working class in the automobile industry of Punjab area believes that their employers provide them full independence to enjoy their work. The responders have shown love towards their work. The next three statements “My supervisor provides continuous feedback to me”, “My job itself provides information about my work performance” and “I have large amount of variety in work” exhibited the high mean score of 3.875, 3.8725 and 3.825, respectively. This illustrates that there exists a constructive job environment in the automobile industry that helps workers to work efficiently and meet the required standards by continuously polishing their skills as a result of constructive feedback.

The scores summarized in Table 9 are comparatively plotted in Figure 10. It is observed that the job characteristic evaluation exhibited negative skewness that means that the distribution is negatively skewed or a left skewed distribution is observed.

The plot also indicates that the Kurtosis exhibited negative score against the highest mean score statements that also indicates a raised cosine distribution. Cronbach alpha is a statistical parameter which exhibited a constant value of 0.902 that an indicator of excellent internal consistency of the score values obtained for the job related statements.

#### 4.3 Scenario 3

The employee engagement is measured in terms of physical engagement, emotional engagement and cognitive engagement.

##### 4.3.1 Physical Employee Engagement

The Table 10 summarizes the parametric values of descriptive analysis results obtained against the six evaluation statements of physical engagement for employee engagement.

Table 10: Descriptive statistics - Physical engagement

Statement	Mean	Standard Deviation	Mode	Skewness	Kurtosis	Cronbach Alpha
On my job, I put in a lot of determination	3.925	1.103	4	-0.976	0.156	0.929
I put out my best effort in my work	3.817	1.169	4	-0.831	-0.356	
I put a lot of effort into my profession	3.44	1.074	4	-0.666	-0.637	
I make every effort to excel at my job	3.4	1.132	4	-0.645	-0.727	
I work as hard as I can to finish my task	3.572	1.096	4	-0.936	0.022	
I put a lot of effort into my work.	3.602	1.103	4	-0.976	-0.331	

The results of descriptive analysis of physical engagement exhibited an average mean value  $> 3$  which is an indicator that the working class of automobile sector in Punjab has constructive understanding for their physical engagement. From the Table 10 and Figure 11, it is observed that the statement “On my job, I put in a lot of effort” exhibited the highest mean value of 3.925. This indicates that the employees engaged in the automobile industry work with their full strength and passion which is also demanding from employer side to achieve the required targets.

The next high mean value of 3.817 corresponds to “I put out my best effort in my work” that indicates that the responders believe that they used to dedicate full energy to complete their work efficiently. The lowers mean value of 3.4 was represented by “I make every effort to excel at my job” statement which is also a good indicator of constructive job environment. The results for physical engagement exhibited a negative skewed value that represents a left skewed distribution. The Kurtosis parameter exhibited negative values against the high mean score statements that indicate a platy kurtic distribution. Cronbach Alpha exhibits a uniform value of 0.929 that is higher than 0.9 which means that the physical engagement indicates excellent internal consistency.

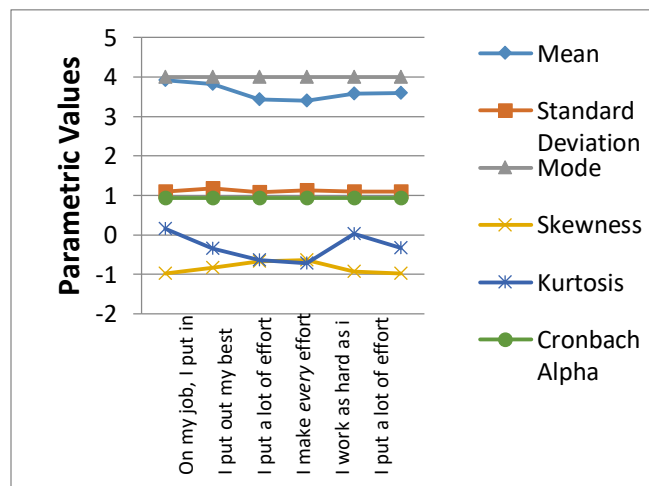


Fig 10. Descriptive statistics - Physical engagement

#### 4.3.2 Emotional Employee Engagement

The six statements that indicate the emotional engagement of employee in their job are listed in Table 11. The emotional engagement is analyzed with the help of mean standard deviation, mode, skewness, kurtosis and Cronbach alpha factor. These statistical parameters are also plotted in Figure 11 to offer a better visualization of the resultant score values.

Table 11: Descriptive statistics - Emotional engagement

Statement	Mean	Standard Deviation	Mode	Skewness	Kurtosis	Cronbach Alpha
My work excites me	3.6725	1.05262	4	-0.934	0.312	0.928
My job gives me a lot of energy	3.3975	1.12591	4	-0.405	-0.762	
My job fascinates me	3.41	1.1855	4	-0.347	-0.989	
My work makes me proud	3.3325	1.14684	4	-0.236	-1.052	
I'm optimistic about my work	3.3125	1.13714	4	-0.183	-1.089	
My work role excites me	3.27	1.20029	4	-0.2	-1.146	

It is observed that the parametric values of descriptive statistics exhibited an average mean > 3. This indicates that employees in the Punjab automobile industry have a positive understanding with their organization. The highest mean score of 3.6725 have been observed against “My work excites me” statement which means that the employees in this sector are highly passionate about their work. The next high score of 3.41 is observed against “My job fascinates me” which is an indicator of the extent to which the employees get involved in the work. This also shows that the employees are fully dedicated towards their work. The skewed parameter possesses a negative value that means the existence of a left skewed distribution. Kurtosis showed a positive value against “My work excites me” statement else for all other statements a negative Kurtosis is observed. Cronbach Alpha of more than 0.9 is observed that is a excellent indicator of internal consistency.

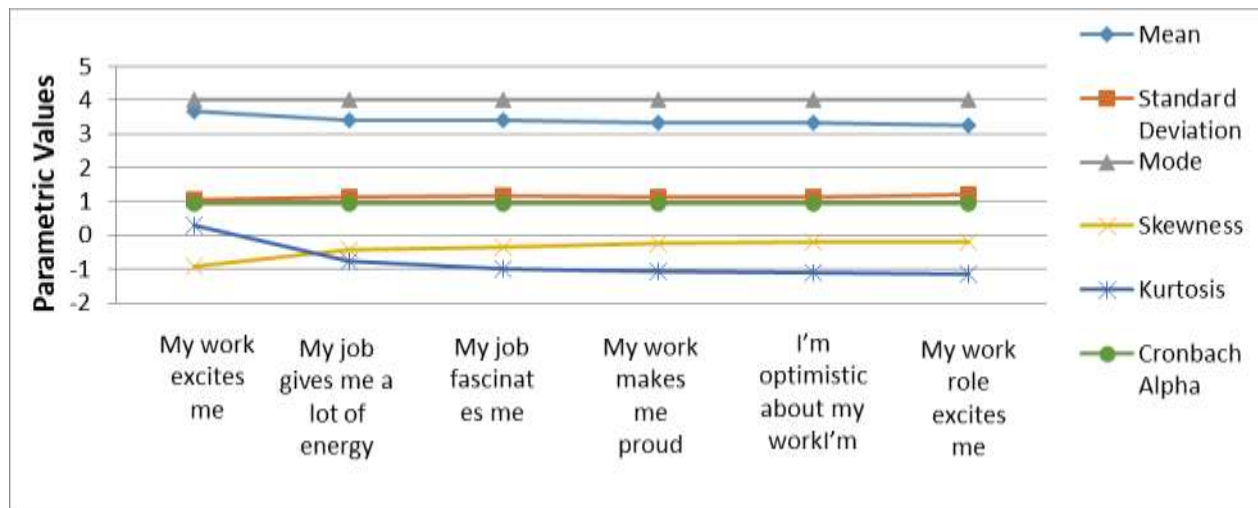


Fig 11. Descriptive statistics - Emotional engagement

#### 4.3.3 Cognitive employee engagement

It is the third factor that indicates the employee engagement in an organization. It defines the employees’ belief in the organization or the workplace. The willingness of employees to work for the organization is measured using six statements

summarized in Table 12. The mean, standard deviation, mode, skewness, kurtosis and Cronbach alpha scores are calculated and summarized in Table 12.

Table 12: Descriptive statistics - Cognitive engagement

Statement	Mean	Standard Deviation	Mode	Skewness	Kurtosis	Cronbach Alpha
My mind is concentrated on my task at work	3.727	0.987	4	-0.843	0.344	0.92
I focus on my work a lot at job	3.45	1.072	4	-0.372	-0.774	
I concentrate on my duties at work	3.43	1.171	4	-0.314	-1.019	
I pay close attention to what I'm doing	3.37	1.089	4	-0.225	-1.021	
I'm really engrossed in my work	3.367	1.093	4	-0.213	-1.036	
I put a lot of effort into my work	3.402	1.124	4	-0.245	-1.03	

It is observed that the statements for the evaluation of cognitive employee engagement exhibited a mean value more than 3. The descriptive analysis shows that the statement "My mind is concentrated on my task at work" exhibited a highest mean value of 3.727 and standard deviation of 0.987. These parameters show that the employees are totally focussed towards their work to enhance their work performance. Moreover, the result also followed a standard or normal distribution. The next higher mean score of 3.45, 3.43 and 3.402 are observed against "I focus on my work a lot at job.", "I concentrate on my duties at work" and "I put a lot of effort into my work" with standard deviation of more than 1. The score evaluation indicates that employees work dedicatedly while fully devoting themselves towards the assigned work. In this case too negative skewed distribution is observed that indicates that the data is distributed towards the left side. In the cognitive employee engagement high variation in kurtosis from 0.3 to -1.039 have been observed with a average negative value. The figure also shows that a constant cronbach alpha value is observed against all the statements exemplifying an excellent internal consistency.

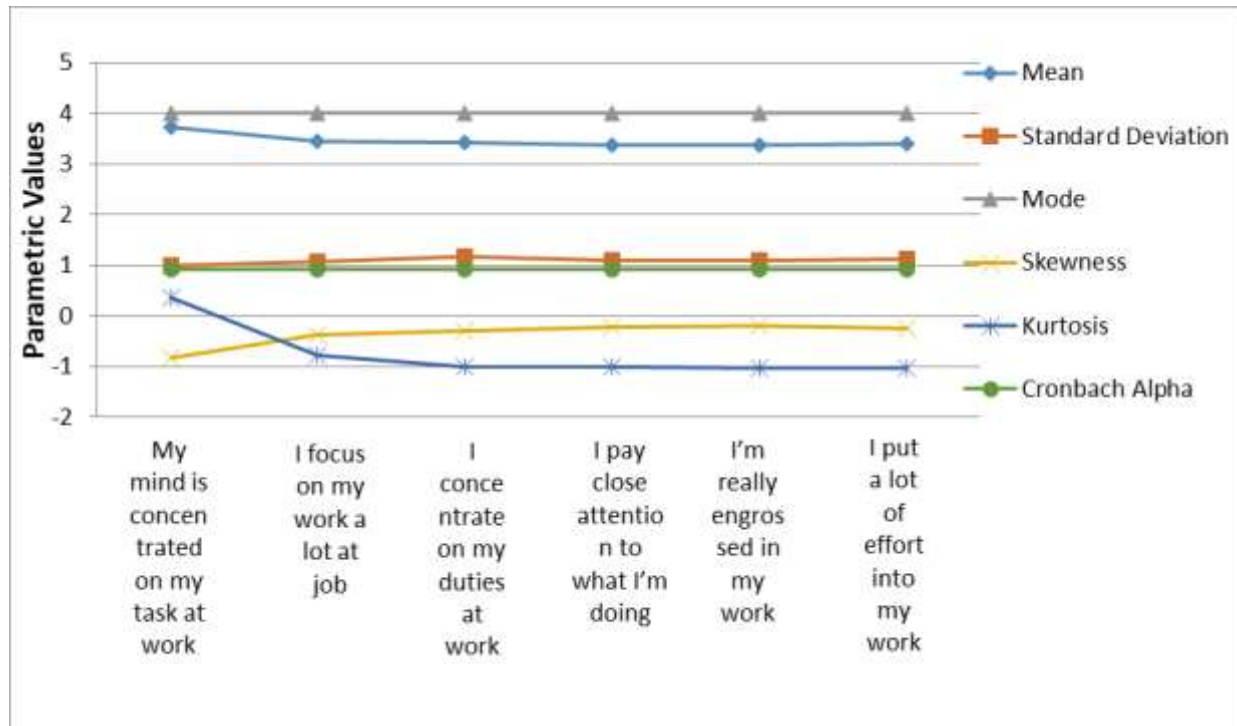


Fig 12. Descriptive statistics - Cognitive engagement

#### 4.4 Scenario 4: Regression Weight

Table 13 summarizes the regression weight analysis of statements and their descriptors. The table reports the standardized construct loading (S.C.L.) in column 3, unstandardized estimate (U.E) in column 4, standard error (S.E) in column 5, critical ratio (C.R) in column 6 and probability (P) value in column 7 against individual statements. The variation of these parametric values against various statements is evaluated to draw out the relationship among various factors and indicators of employee engagement and how they influence the presence of the other.

Table 13: Regression Weight of the measurement model

Statement	Descriptors	S.C.L	U.E	S.E.	C.R.	P
Cognitive Engagement	Employee Engagement	0.687	0.811	0.082	9.938	***
Physical Engagement	Employee Engagement	0.811	1			
Emotional Engagement	Employee Engagement	0.697	0.877	0.082	10.042	***
My contributions towards the organization's success are valued	Perceived Organisation Support	0.798	1			
Any additional effort from me is not valued by the corporation	Perceived Organisation Support	0.758	0.972	0.059	16.516	***
The organization is genuinely concerned about my well-being	Perceived Organisation Support	0.747	0.969	0.069	16.199	***
Although if I did my best stuff, the organization would	Perceived	0.748	0.97	0.06	16.24	***



not notice	Organisation Support		9		1	
The company is concerned about my overall job happiness	Perceived Organisation Support	0.795	1.067	0.061	17.55	***
The company is least concerned about me.	Perceived Organisation Support	0.766	1.018	0.061	16.726	***
Any complaint I made would be ignored by the organization.	Perceived Organisation Support	0.731	0.911	0.058	15.755	***
The company is proud of my achievements at work.	Perceived Organisation Support	0.733	0.941	0.059	15.83	***
My boss shows interest in what I have to say	Perceived Organisation Support	0.72	0.967	0.061	15.894	***
My manager has shown concern about my well-being.	Perceived Organisation Support	0.804	0.989	0.054	18.479	***
My boss takes my objectives and principles very seriously	Perceived Supervisor	0.84	1.016	0.052	19.547	***
My supervisor shows very little concern for me ®	Perceived Organisation Support	0.85	1			
My organization provides autonomy to work	Job Characteristics	0.821	1.112	0.055	20.061	***
I have large amount of variety in work	Job Characteristics	0.775	1	0.054	18.361	***
My job influences the lives and well-being of other people	Job Characteristics	0.775	0.968	0.053	18.328	***
My supervisor provides continuous feedback to me	Job Characteristics	0.737	0.835	0.049	17.024	***
I usually complete a whole piece of work	Job Characteristics	0.709	0.895	0.057	16.127	***
My supervisor makes me feel that things you tell him/her are really important	Internal Communication	0.867	0.961	0.047	23.867	***
Shows faith in your capacity to do the task	Internal Communication	0.79	0.892	0.044	20.159	***
Motivates you to introduce new information to the discussion, even if it is unpleasant news	Internal Communication	0.72	0.731	0.042	17.279	***
You feel free to talk to him/her	Internal Communication	0.698	0.801	0.049	16.49	***
Understands your job problems	Internal Communication	0.733	0.851	0.048	17.805	***
Makes it easy for you to do your best work	Internal Communication	0.89	1			
On my job, I put in a lot of effort.	Physical Engagement	0.84	1.032	0.052	19.985	***
exert my full effort to my job	Physical Engagement	0.858	1.118	0.054	20.634	***
I put a lot of effort into my profession	Physical Engagement	0.886	1.069	0.045	21.645	***
I make every effort to excel at my job	Physical	0.88	1.11	0.05	21.42	***

	Engagement			2		
I work as hard as I can to finish my task	Physical Engagement	0.818	0.99	0.05	19.20	***
			9	2	3	
I put a lot of effort into my work.	Physical Engagement	0.814	1			
My work excites me	Emotional Engagement	0.815	0.93	0.05	17.86	***
			2	2	6	
My job gives me a lot of energy	Emotional Engagement	0.851	1.04	0.05	18.88	***
			5	5	1	
My job fascinates me	Emotional Engagement	0.857	1.09	0.05	19.04	***
			5	7	4	
My work makes me proud	Emotional Engagement	0.841	1.04	0.05	18.57	***
			5	6	5	
I'm optimistic about my work	Emotional Engagement	0.816	1.00	0.05	17.88	***
			4	6	5	
My work role excites me	Emotional Engagement	0.782	1			
My mind is concentrated on my task at work	Cognitive Engagement	0.807	0.92	0.05	17.56	***
				2	4	
I focus on my work a lot at job.	Cognitive Engagement	0.826	1.00	0.05	18.09	***
				3	5	3
I concentrate on my duties at work	Cognitive Engagement	0.822	1.08	0.06	17.97	***
				1	3	
I pay close attention to what I'm doing.	Cognitive Engagement	0.83	1.02	0.05	18.18	***
				5	6	3
I'm really engrossed in my work	Cognitive Engagement	0.804	1.00	0.05	17.48	***
				2	7	6
I put a lot of effort into my work.	Cognitive Engagement	0.784	1			
I receive recognition for a job well done	Job Satisfaction	0.815	1			
I feel close to the people at work	Job Satisfaction	0.767	0.89	0.05	17.53	***
			6	1	1	
I put a lot of effort into my profession	Job Satisfaction	0.698	0.85	0.05	15.45	***
			4	5		
I feel good about working at this company	Job Satisfaction	0.776	0.94	0.05	17.79	***
			6	3	6	
I feel secure about my job	Job Satisfaction	0.757	1.00	0.05	17.19	***
			6	9	1	
I believe management is concerned about me	Job Satisfaction	0.764	0.90	0.05	17.43	***
			9	2	9	
On the whole, I believe work is good for my physical health	Job Satisfaction	0.727	0.85	0.05	16.30	***
			7	3	1	
My wages are good	Job Satisfaction	0.716	0.86	0.05	15.96	***
			9	4	9	
I adequately completed assigned duties	Employee Performance	0.889	1			
I fulfil the responsibilities specified in my job description	Employee Performance	0.909	0.94	0.03	26.48	***
				2	6	9
I perform tasks that are expected of myself	Employee Performance	0.822	0.89	0.04	21.81	***
				6	1	2
I meet the formal performance requirements of the job	Employee Performance	0.759	0.92	0.04	18.93	***
				2	9	8
I engage in activities that will directly affect my	Employee	0.697	0.79	0.04	16.56	***

performance evaluation	Performance		6	8	3	
All my talents and skills are used at work	Job Satisfaction	0.791	0.96	0.05	18.29	***
I get along with my supervisors	Job Satisfaction	0.735	0.85	0.05	16.53	***
I feel good about my job	Job Satisfaction	0.793	0.98	0.05	18.36	***
My job itself provides information about my work performance	Job Characteristics	0.858	1			

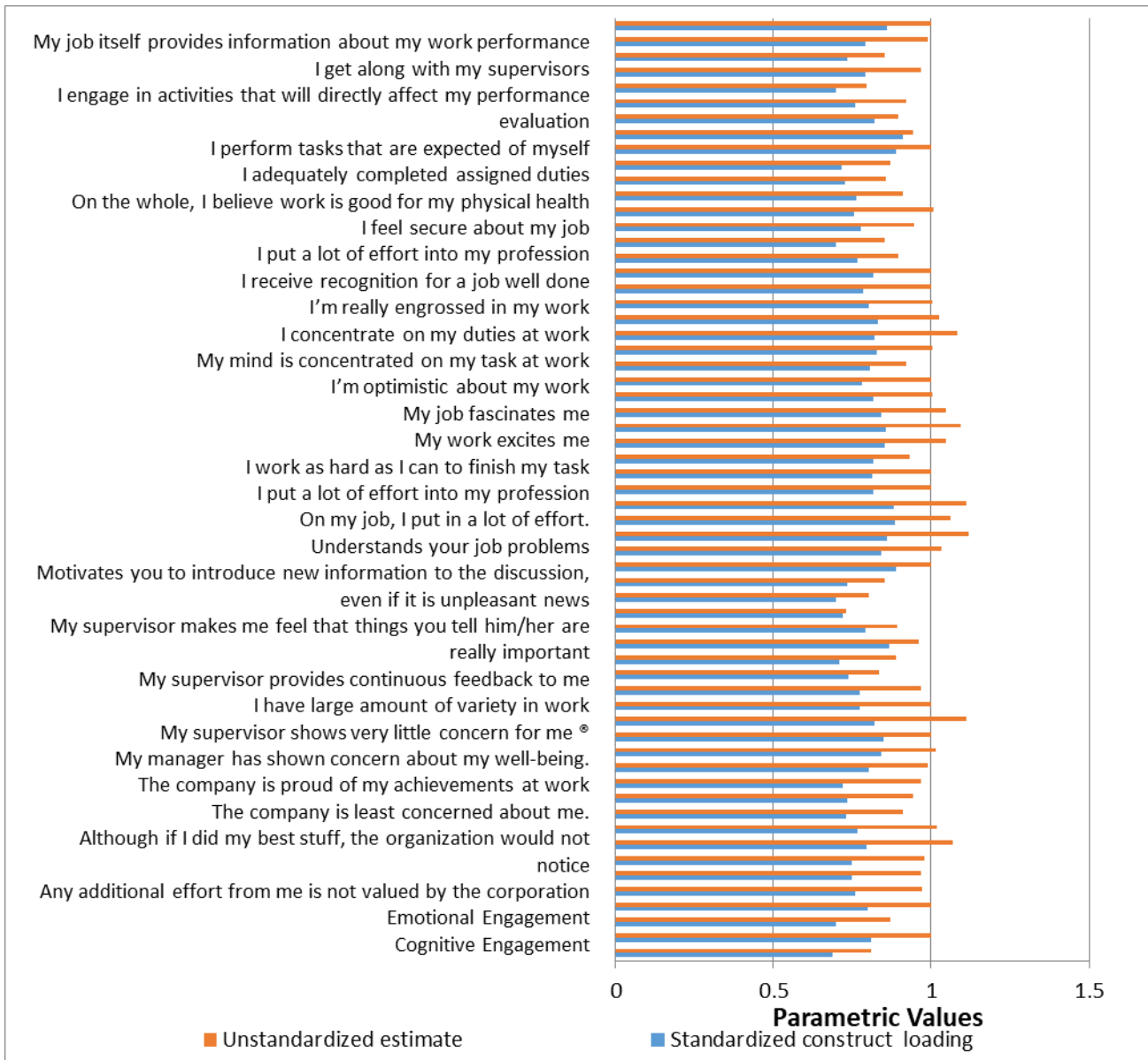


Fig 13. Regression Weight of the measurement model

In Figure 13, two parameters namely, standardized construct loading (S.C.L.) and unstandardized estimate (U.E) are plotted against the various employee engagement statements that corresponds to vivid descriptors and factors. It is observed that the unstandardized estimate is comparatively higher for all the statements as compared to the standardized construct loading.

## 5. Conclusion

Growth of any organization depends on the prevalence of constructive work environment. The proposed study revolved around critically examining the relationship between employees and organization with the help of various questionnaires that covers job characteristics, PSS, physical, emotional and cognitive employee engagement. The responses are statistically evaluated in terms of mean, mode, standard deviation, skewness, kurtosis and Cronbach alpha. It was found that high means score was obtained against statements like “My supervisor cares about my wellbeing”, “My organization provides autonomy to work”, “My work excites me” and “At work, and my mind is focused on my job”. That shows that the responders engaged in automobile industry of Punjab area have a positive perception with their organization and seniors. Regression analysis of measurement model was also done.

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