Abstract: Since globalization, there is constant pressure for the management to reform their human resource management practices. This is to ensure continued existence of these organizations and also human capital development. The changing roles of management places a vital role on performance management through promoting work culture, work environment, degree of fairness and transparency in motivating employee’s to achieve greater performance standards. Performance appraisal, although intricate and debatable tool (Roberts, 2003) being a part of performance management plays an important part in ensuring the organization’s employees perform according to company's expectations. However, recent research has placed much emphasis measurement issue rather than improvement on performance itself (DeNisi, & Pritchard, 2006). The purpose of this research paper is to devise a structural equation modeling (SEM) in reference to performance appraisal, applying three central determinants which is work culture, environment and degree of fairness in order to measure employee's job commitment and influence on performance. Through this research we are able to establish a conceptual framework for future research that focuses on employees’ performance improvement.

Keywords: Performance Appraisal, Performance Management, Human Resource Management, Structural Equation Modeling (SEM).

I. INTRODUCTION

Organizations today rely on performance management to develop human resource as they are the key contributors to the organization’s success. Performance management process is divided into three major activities which are (i) Planning is to promote policies to increase employees performance; (ii) Do is move towards improving employee’s performance and (iii) Review to appraise and to further advance employee's performance; Performance appraisal falls under the “Review” category as it is a “set of activities carried out by organizations which seek to assess employees and develop their competence, enhance performance and distribute rewards” (Fletcher, 2001). Dessler (2002) identified that it is essential for the organization to set appropriate labor ideals in measuring the employee’s tangible performance relative to the labor objectives set by the companies. In addition, it is necessity for the organizations to provide material feedback that is aimed at motivating the employees and developing any unhealthy performances, meanwhile continues to improve their performance above par.

There are several limitations to the performance appraisal tool because it aims to assess the individual strength and performance results and ignores work environment, work culture, and degree of fairness practiced in rating employees. Numerous facets of research suggest that there are positive correlation between performance appraisal and reinforcement of constructive behavior however, the work environment, culture and standards of procedures, i.e., transparency in the organization is not examined thoroughly. Performance appraisal in organizations mainly depends on the organizational goals, objectives the skills of the appraisers for the purpose of appraisal such as salary increment, bonus, promotions, termination and development of adequate competence and expertise (Virani, 2012 & Kvaloyet al., 2008). In this study, a structural equation modeling (SEM) is developed to measure the applicability of this model. Hundred employees from two automobile ancillary companies has been selected and an analysis on their performance appraisal systems with reference to its work environment, work culture and the exactitude of fairness in which facilitates to improve employee’s performance has been examined.

II. REVIEW OF LITERATURE

Organizations use traditional and contemporary types of appraisal methods to assess their employee’s performance. In addition, organization also outsources some of the performance management functions including appraising employees to external consultant in order to help achieve their vision and mission. A study conducted by Sripirabaa & Krishnaveni (2009) for Indian manufacturing sector implied that the appraisal by external members at particular time does not reflect accurately on the employee’s overall performance since the consultants fail to align the procedural and work standards for performance growth. The results of the research obliquely “reject the external appraisers and partnering in the performance appraisal process” (Sripirabaa & Krishnaveni, 2009 and Kumar et al., 2018). Managers skills in appraising employees is a central factor in stimulating employees productive behavior, performance appraisal free from biasness and ensuring optimal job satisfaction. However, according to study performed in IT sector, manager focus more on the deliverables rather than the people management thus they are lack of skills to appraise their employees more objectively (Anbarasu & Clement, 2014).

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The appraisal system should be designed towards the development of employees’ career through continuous training which leads them to psychometric matters such as right attitudes, perceptions, leadership practices, teamwork and organization culture. Job commitment, motivation and incentives or rewards only work if the organization is able to establish clear performance objective goals at each stage within the organization. Besides, performance appraisal is a systematic method of appraising individuals and giving meaningful feedback on which employee’s performance improvement could be made. Armstrong and Baron (2000), indicated in their research study that performance appraisal only effective based on the following principles which is “desired performance minus the actual performance equivalent to the need for action” taken by the management to motivate and retain the employees.

II. RESEARCH OBJECTIVES

The objective of this research study is critically examine the following areas:

1) To study the demographic profiles of the employees of the two ancillary automobile company.
2) To identify the following determinants: work culture, work environment and the degree of fairness in performance appraisal system contributes to employee’s job commitment
3) To examine the usefulness of the factors identified, how it contributes towards employee’s enhanced performance in automobile ancillary automobile industry.
4) To estimate whether all the measures fit the suggested values, for the structural model to indicate a “good fit” on the collected data.

SIGNIFICANT OF THE STUDY

Since Indian Liberalization, Privatization and Globalization (LPG Policy) also known as New Economy Policy introduced in 1991 (Roy, 2012) many multinational corporations (MNCs) has sprang throughout Chennai that resulted in intensified interdependencies of domestic and international companies on human resources. Hence, labour cost is constantly rising, there is a surging need for automobile companies to cut down on their car prices in order to compete in the industry. The automobile industry in India being one of the fourth largest in world with an annual production of 25.36 million in year 2015 to 2016 alone which account for 2.57% growth from previous year (IBEF, 2018). With the tremendous growth in automobile industry, labour efficiency and productivity has become a core issue due to training programs are costly to organizations. Thus, organizations are keen in showing increase willingness to retain talent and reassign labour when necessary. Besides, organizations also constantly carry out corporate restructuring and redefining employee’s roles and responsibilities to the changing environment. The purpose of this study is aimed at examining the appraisal factors that contributes to employee’s effective performance. This type of research gains provides an insight that is important for future research.

III. RESEARCH METHODOLOGY

For this study involves two MNCs ancillary automobile companies located at Chennai are selected. These companies are major automobile parts manufacturer such as headlamps, signaling lamps, car seats and others to automobile assemblers namely Toyota Kirloskar Motor Private Ltd. (main customer), Hyundai (main customer), Honda Siel Cars India Ltd, Maruti Suzuki India Limited, and Fiat India Automobiles Private Limited. The existing performance appraisal system in these two organisations is used for the purpose of this survey research. The required data has been collected through the administration of questionnaires. The questionnaires were developed using five (5) point Likert type scale which represents 1 = ‘to strongly agree’, 2 = ‘agree’, 3 = ‘neutral’, 4 = ‘disagree’ and the endpoints 5 = ‘strongly disagree’on preference to a seven-point scale for a more valid and reliable data analysis.

IV. SAMPLE AND DATA COLLECTION

In achieving the above stated objectives and to meet the prerequisite of the research study, data has been collected from a sample size narrowed down two (2) automobile ancillary companies with a total population size of 500 employees. The completed questionnaires are evaluated for their accuracy and the gaps between the mitigating factors are observed and followed up with the employees. The data received pertaining to this study is entered in Statistical Package for Social Science (SPSS) and Analysis of Moment Structure (AMOS) (Renganathan et al, 2012). Statistical techniques such as descriptive and reliability analysis (Renganathan et al, 2012) were used to evaluate the appraisal factors that contributes to effective employee’s performance. In this research Structural Equation Modeling (SEM) (Renganathan et al, 2012) was applied for data analysis, and outcome of the results were discussed.

Sampling

Stratified random sampling method where division of employees into a smaller group was used to design sample size and collection of data. Lists of employees working these two companies were taken and respondents were classified into smaller clusters known as strata.
There are 10 employees placed in each cluster?A random sample of four employees are selected from each stratum proportional to stratum’s size (Marshall, 1996).

The questionnaires are then distributed to this smaller group. The overall response rate for this survey based on the selected size is about 50 percent.

**Primary Data:**

Comprehensive structured questionnaire was designed for collection of data. The questionnaires are distributed to managers, executives and staff operational at the junior, middle and top level of management. Direct interview is also conducted with the management and human resource department officials to conclude on objectivity of the study. The interviews are done on an informal method, the outcome were analyzed and has been suitably presented in this report.

**V. RESEARCH RESULTS AND ANALYSIS**

**Demographics of the employees**

Table 1 Demographic profile of the employees (n=100)

<table>
<thead>
<tr>
<th>S/N</th>
<th>Characteristics</th>
<th>Categories</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gender</td>
<td>Male</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>2.</td>
<td>Age Group</td>
<td>Below 30</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>(in years)</td>
<td>30-40</td>
<td>61</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Above 40</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>3.</td>
<td>Educational Qualification</td>
<td>Up to HSC</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diploma</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Under Graduation</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post-Graduation</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>4.</td>
<td>Department</td>
<td>Production</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintenance</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>5.</td>
<td>Management Level</td>
<td>Senior</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Junior</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>6.</td>
<td>Salary per month</td>
<td>Below Rs.20,000</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rs.20,000-</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rs.30,000-</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rs.30000-</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rs.40,000</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Above Rs.40,000</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>7.</td>
<td>Reporting Officer</td>
<td>Managing Director</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Manager</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Senior Manager</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manager</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supervisor</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>8.</td>
<td>Average Increment</td>
<td>Below Rs.2,000</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rs.2,000- Rs.3,000</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Above Rs.3,000</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

Based on the survey, 150 questionnaires are distributed and only manage to collect feedback from 100 respondents. Table 1 indicates 100% of the participants were male due to the type of industry that is being surveyed which is manufacturing sector and a large percentage of respondents come from production and maintenance department. The employee’s profiling indicates that 24% of the employees under the age category of below 30 years old, 61% from 30 to 40 years old category and 14% is above 40 years old. 15% falls under the highest qualification which is postgraduate and other professional courses. The rest 85% falls under other category of qualification as shown in Table 1. The data collected reveals the 22% of the respondents are from senior management level, 49% from middle management, and 29% from junior level. In terms of salary per month, the employee’s breakdown as follows; 27% falls below Rs.20,000, 25% between Rs.20,000 to Rs.30,000, 29% between Rs.30000 to Rs.40,000 and 19% above Rs.40,000. Large majority reports 84% of the employees’ reports to manager and general manager level above, whereas only 5% reports to supervisory level. 42% of respondents receives an average increment below Rs.2,000, 28% between Rs.2,000 to Rs.3,000 and 30% above Rs.3,000.

Construct reliability and validity analysis of employee’s performance appraisal factors

In applying Likert scales, it is essential to use the Cronbach’s alpha coefficient in testing the reliability and consistency of the model derived (Hinkin, 1998) for this study. The Table 2 below shows components and total reliabilities of the performance appraisal factor’s score. The results indicate that Cronbach’s alpha for all performance factors are above 0.7 which anticipates a great level of internal correlation for the scale selected (George &Mallery, 2003). Cronbach’s alpha values for the sub factors assessing employees’ desired performance are as follows; work culture is 0.853, work environment 0.863, degree of fairness is 0.851, job commitment is 0.912 and performance of employee 0.919. 

Table 2 Result of reliability analysis of employee’s performance appraisal factors

<table>
<thead>
<tr>
<th>Factors</th>
<th>No. of attributes</th>
<th>Cronbach alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Culture</td>
<td>7</td>
<td>0.853</td>
</tr>
<tr>
<td>Work Environment</td>
<td>7</td>
<td>0.863</td>
</tr>
<tr>
<td>Degree of Fairness</td>
<td>7</td>
<td>0.851</td>
</tr>
<tr>
<td>Job Commitment</td>
<td>7</td>
<td>0.912</td>
</tr>
<tr>
<td>Performance of Employee</td>
<td>10</td>
<td>0.919</td>
</tr>
</tbody>
</table>
Data Analysis

Table 3 Pearson Correlations of employee’s performance appraisal factors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Work Culture</th>
<th>Work Environment</th>
<th>Degree of Fairness</th>
<th>Job Commitment</th>
<th>Performance of Employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Culture</td>
<td>1.000</td>
<td>0.885**</td>
<td>0.786**</td>
<td>0.854**</td>
<td>0.752**</td>
</tr>
<tr>
<td>Work Environment</td>
<td>-</td>
<td>1.000</td>
<td>0.797**</td>
<td>0.847**</td>
<td>0.744**</td>
</tr>
<tr>
<td>Degree of Fairness</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>0.853**</td>
<td>0.794**</td>
</tr>
<tr>
<td>Job Commitment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>0.876**</td>
</tr>
<tr>
<td>Performance of Employee</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Note: 1. ** Denotes significant at 1% level

Between the work culture and environment the correlation coefficient is 0.885, which indicates a positive relationships between these two factors and is significant at 1% level. Between the work culture and degree of fairness factors the correlation coefficient is 0.786 which indicates 78.6 percentage of positive relationship between these two factors and is significant at 1% level. Between work culture and job commitment is 0.854 which indicated that it has 85.4 percentage relationship between these two factors and is significant at 1% level. The final factors tested between work culture and performance of employees shows that the correlation is 0.752, which indicates that 75.2 percentage positive relationship between these two factors and is significant at 1% level and similarly the measured factors are positively correlated with other. The measured correlation indicates that there is a strong linear coefficient among the variables that being measured in this model. The closer the values measured to 1 the stronger the correlation between the two variables (Benestyet al, 2009).

Structural Equation Modeling (SEM)

Structural Equation Model (SEM) is a technique used to measuring the cause and effect relationship for the gathered data on its aptness (Romano & Palumbo, 2006) A reliability and validity test is carried out first as suggested by Anderson andGerbing (1988)using AMOS software. SEM, allows to assess the causal relationship between the endogenous and exogenous variables as well as identifying the compatibility of the model (Tobbin,&Kuwornu, 2011). The SEM allows the evaluation of the data if it is a good fit for a theoretical model using the following measures, Chi-square or DF, (x²/d.f.), GFI, AGFI, NFI, CFI, RMR, and RMSEA.

Table 4 The factor performance appraisal of employees used in the SEM

<table>
<thead>
<tr>
<th>I. Observed, endogenous variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Job Commitment</td>
</tr>
<tr>
<td>2. Performance of Employee</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Observed, exogenous variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Work Culture</td>
</tr>
<tr>
<td>2. Work Environment</td>
</tr>
<tr>
<td>3. Degree of Fairness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III. Unobserved, exogenous variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. e1: Job Commitment</td>
</tr>
<tr>
<td>2. e2: Performance of Employee</td>
</tr>
</tbody>
</table>
Significance tests of individual parameters

The associated statistical test and the unstandardized coefficient test are additionally carried out to test the

| Variables in the Structural Equation Modeling (SEM) Analysis |
|---------------------------------|-----------------|---------------|-----------------|----------------|
| Variables                        | Unstandardized coefficient | S. E  | Standardized coefficient | t value  | P value  |
| Job Commitment                   | Work culture     | 0.273 | 0.07 | 0.326 | 3.458 | <0.001** |
| Job Commitment                   | Work environment | 0.155 | 0.06 | 0.226 | 2.335 | 0.020*  |
| Job Commitment                   | Degree of fairness | 0.427 | 0.07 | 0.416 | 5.727 | <0.001** |
Performance Appraisal System In Automobile Ancillary companies: Structural Equation Modeling Approach

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized coefficient</th>
<th>S. E</th>
<th>Standardized coefficient</th>
<th>t value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance of employee</td>
<td>---</td>
<td>1.458</td>
<td>0.876</td>
<td>18.056</td>
<td>&lt;0.001**</td>
</tr>
</tbody>
</table>

Note: 1. * denotes significant at 5% level
2. ** denotes significant at 1% level

The work culture unstandardized coefficient measured is 0.273 which signifies the fractional effect on job commitment, holding other variables constant. The assessed positive figure implies that there is a positive effect between job commitment and work culture where job commitment will increase by 0.272 for ever unit of increase in work culture and the coefficient value is significant at 1% level.

As for work environment, the unstandardized coefficient is 0.155 signifies a fractional effect on job commitment, holding other variables constant. The assessed figure shows a positive sign that implies that it has a positive relationship on job commitment. Job commitment increases by 0.155 for every unit of increase in work environment and this coefficient value is significant at 5% level.

The unstandardized coefficient for degree of fairness is 0.427 which signifies the fractional effect on job commitment, holding other variables constant. The assessed figure shows that is has a positive effect on job commitment. Job commitment increases by 0.427 for every unit of increase in degree of fairness and this coefficient is significant at 1% level.

The final measure of unstandardized coefficient of job commitment is 1.458 which signifies the fractional effect on the performance of the employee, holding the other variables constant. The positive sign of the estimated value implies that performance of employee would increase by 1.458 for every amount of increase in job commitment and this coefficient value is significant at 1% level.

The standardized coefficient shows that performance of employee to job commitment is ranked first with coefficient 0.876, followed by degree of fairness to job commitment with coefficient 0.416, work culture to job commitment with coefficient 0.326 and finally work environment to job commitment with coefficient 0.226.

**Hypothesis**

In testing the model fit the null hypothesis and alternative hypothesis are framed.

Null hypothesis ($H_0$): The hypothesized model has a good fit.

Alternate hypothesis ($H_1$): The hypothesized model does not have a good fit.

Table 6 Model Fit Summary of Structural Equation Modeling (SEM)

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>Results</th>
<th>Suggested Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square value</td>
<td>3.67</td>
<td>-</td>
</tr>
<tr>
<td>Degree of freedom (DF)</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>P value</td>
<td>0.299</td>
<td>&gt; 0.05 (Hair et al., 1998)</td>
</tr>
<tr>
<td>Goodness of Fit Index (GFI)</td>
<td>0.986</td>
<td>&gt; 0.90 (Hu and Bentler, 1999)</td>
</tr>
</tbody>
</table>
Bollen (1989) in his research stated that “the higher the probability associated with Chi-square, the closer the fit between the hypothesized model and the perfect fit”. The test of the null hypothesis $H_0$ is a three-variables of employee performance determinants as illustrated in Figure 1, the yielded a chi-square shows a value of 3.67 with 3 degrees of freedom and with a probability of 0.299 which is greater than suggested ($p > 0.05$ Hair et al, 1998). It is signifying that there is a good the fit of the data to the hypothesized model.

For an acceptable model Hair et al, 1998 suggested that P value must not be greater than 0.05 and for this study P value is 0.299 which indicates the model perfectly fits. GFI, AGFI and NFI values are greater than 0.90 recommended therefore the model fitted satisfactorily. It is also found that RMSEA value is 0.048 less than 0.08 suggested (Bagozzi & Yi, 1988). The Goodness of Fit Index (GFI) supports the model fit. The indicated values in Table 6 shows the satisfactoriness of the model fit (Hammevold & Olsson, 2012).

**VI. CONCLUSION AND IMPLICATIONS**

The purpose of this research study is to perform an experiential study analysis on the outcome of the employee’s performance based on performance appraisal’s factors. The design of this appraisal model is based on work place culture, environment and degree of fairness in rating process and to what extent these determinants promotes employees’ job commitment and their performance. The proposed model is calibrated using the data collected from 100 employees in two automobile ancillary companies. This model indicates Cronbach’s alpha value is above the cut off value of 0.7 which explains the high level of consistency.

From the results it could be soundly accomplished that the hypothesized performance model fits the sample data. The important parameter estimates of the following values of GFI, AFGI, NFI, CFI and RMSEA indicates the feasibility and statistical significance and the model is considered as a good fit. Values concluded in Figure 1 signifies sufficient depiction of effectiveness of employee’s performance through efficient appraisal system for automobile ancillary industry. The structural model studied in this research indicates the acceptability of this model hence, the premeditated goodness of fit values supports the model fit.

This research study will be beneficial to organizations in future to establish the significance of work culture, work environment and degree of fairness in appraising employee’s job commitment, job satisfaction for enhanced performance. Since globalization, the present competitive environments has made it challenging to retain the existing skilled employees. This survey results, enables management to identify the areas that need to be improved in maximizing employee’s productivity and self-esteem.

**Limitations and Future Research**

There are some restrictions to this research study as only two organizations are surveyed for findings and this study might not be fully pertinent to other segmentor industries in India. Further, due to a smaller sample size (n-100), and the research study emphasizes only for auto parts supplying manufacturers therefore, generalization if the results may not be adequate to automobile industry as a whole. The determinants of the performance only include three factors. There are many other factors such as performance appraisal process and procedures, trainings, rewards, incentives, motivation level and etc.

which also contribute to superior employees’ job performance. Thus, a more complete model should be designed and developed for effective analysis. Further similar research on effectiveness of employee’s performance can be done in other industries, particularly in the globalized atmosphere from a different standpoint that will facilitate to enhance employee’s productivity and self-esteem.

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Performance Appraisal System In Automobile Ancillary companies: Structural Equation Modeling Approach


