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

Ramila Devi Ram Sing, S. Vadivelu

Abstract:*Since globalization, there is constant pressure for the management to reform their human resource management practices. This is to ensure continued existence of theseorganizations and also human capital development.The changing roles of managementplacesa 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 intricateand 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 iswork 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 keycontributors to the organization's success. Performance management process is divided into three major activities which are (i) Planning is to promotepolicies to increase employees performance; (ii) Do is move towards improving employee's performanceand (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 laborideals in measuring the employee's tangible performance relative to the labor objectives set by the companies. In addition, it is necessity for the organisations to provide material feedback that is aimed at motivating the employees andinrepudiatingany unhealthy performances, meanwhile continues to improve their performance above par.

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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 proceduresi.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 anddevelopment of adequate competence and expertise (Virani, 2012&Kvaloyet al, 2008). In this study, a structural equation modeling(SEM) is developed tomeasure 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 whichfacilitates 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 conductedby SripirabaaandKrishnaveni (2009) for Indian manufacturing sectorimplied 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 procedurals 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 acentral factor in stimulatingemployees productivebehavior, 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).

The appraisal systemshould 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 able to establish clear performance objective goals at each stage within the organization.Besides, performance appraisal is a systematic method of appraising individuals and givingmeaningful 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 followingdeterminants: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, organisations are keen in showing increase willingness to retain talent and reassign labour when necessary. Besides, organisations 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 isimportant for future research.

III.RESEARCH METHODOLOGY

For this study involves two MNCsancillary 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 was developed using five (5) point Likert type scalewhich represents 1 = 'to strongly agree', 2 = 'agree', 3 = 'neutral', 4 = 'disagree' and the endpoints 5= 'strongly disagree'in preference to a seven-point scalefor 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 totalpopulation 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 twocompanies were taken and respondents were classified into smaller clusters known as strata.

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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)

S/N	Characteristics	Categories	Frequency	Percentage
1.	Gender	Male	100	100
2.	Age Group (in years)	Below 30	24	24
		30-40	61	61
		Above 40	15	15
3.	Educational Qualification	Up to HSC	11	11
		Diploma	44	44
		Under Graduation	30	30
		Post-Graduation	15	15
4.	Department	Production	27	27
		Quality	13	13
		Maintenance	39	39
		Others	21	21
5.	Management Level	Senior	22	22
		Middle	49	49
		Junior	29	29
6.	Salary per month	Below Rs.20,000	27	27
		Rs.20,000-	25	25
		Rs.30,000	29	29
		Rs.30000-	19	19
		Rs.40,000		
		Above Rs.40,000		
7.	Reporting Officer	Managing Director	11	11
		General Manager	23	23
		Senior Manager	15	15
		Manager	46	46
		Supervisor	5	5
8.	Average Increment	Below Rs.2,000	42	42
		Rs.2,000- Rs.3,000	28	28
		Above Rs.3,000	30	30
	Frequency Reviewed	Half yearly	52	52
		Yearly	48	48

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 whichanticipates 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

Factors	No. of attributes	Cronbach alpha
Work Culture	7	0.853
Work Environment	7	0.863
Degree of Fairness	7	0.851
Job Commitment	7	0.912
Performance of Employee	10	0.919

Data Analysis

Table 3 Pearson Correlations of employee's performance appraisal factors

Variables	Work Culture	Work Environment	Degree of Fairness	Job Commitment	Performance of Employee
Work Culture	1.000	0.885**	0.786**	0.854**	0.752**
Work Environment	-	1.000	0.797**	0.847**	0.744**
Degree of Fairness	-	-	1.000	0.853**	0.794**
Job Commitment	-	-	-	1.000	0.876**
Performance of Employee	-	-	-	-	1.000

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

I.	**Observed, endogenous variables**
1.	Job Commitment
2.	Performance of Employee
II.	**Observed, exogenous variables**
1.	Work Culture
2.	Work Environment
3	Degree of Fairness
III.	**Unobserved, exogenous variables**
1.	e1: Job Commitment
2.	e2: Performance of Employee

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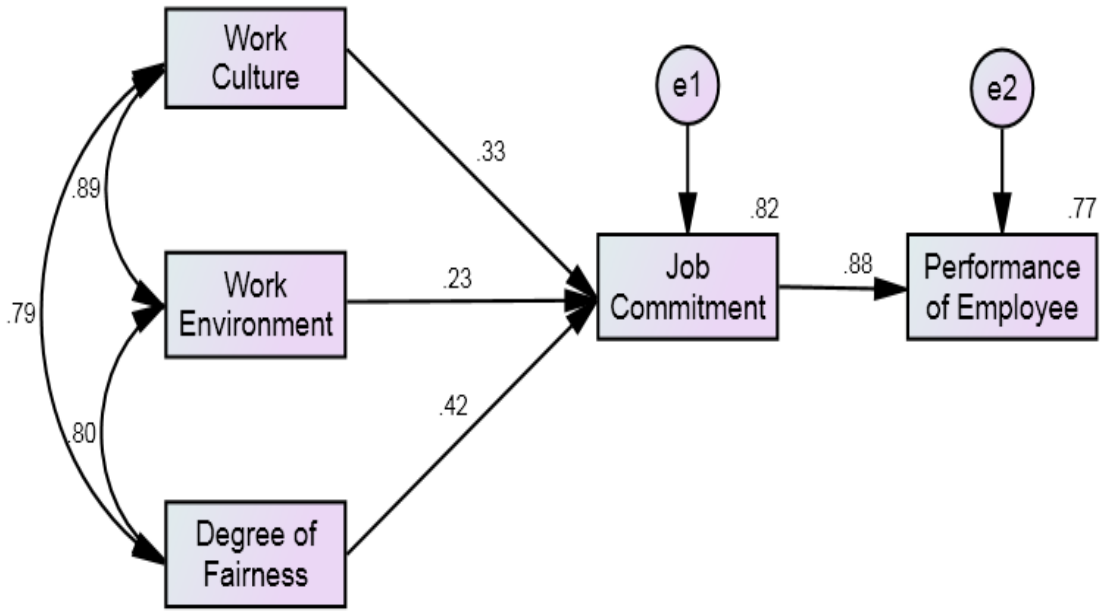

Figure 1: Structural Equation Modeling (SEM)of employee's performance appraisal factors

Significance tests of individual parameters

The associated statistical test and the unstandardized coefficient test are additionally carried out to test the model.The unstandardized regression coefficient symbolizes"the variation in the dependent variables to a change in independent variable by each unit keeping other independent variables constant" (Harter et al, 2002). This index could be used to compare in this study similar to standardized mean difference (Fitrianto& Midi, 2013). Table 4 illustrates the estimated values of unstandardized coefficient, its standard error (S.E) and the t value. The P column in Table 4 indicates the probability value associated with the tested null hypothesis which exhibits zero.

Table 5 Variables in the Structural Equation Modeling (SEM) Analysis

ariables			Unstandardized coefficient	S.E	Standardized coefficient	t value	P value
Job Commitment	<---	Work culture	0.273	0.079	0.326	3.458	<0.001**
Job Commitment	<---	Work environment	0.155	0.067	0.226	2.335	0.020*
Job Commitment	<---	Degree of fairness	0.427	0.075	0.416	5.727	<0.001**

ariables			Unstandardized coefficient	S.E	Standardized coefficient	t value	P value
Performnce of employee	<---	Job Commitment	1.458	0.081	0.876	18.056	<0.001**

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 1.458for 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)

Fit Indices	Results	Suggested Values
Chi-square value	3.67	-
Degree of freedom (DF)	3	-
P value	0.299	> 0.05 (Hair et al, 1998)
Goodness of Fit Index (GFI)	0.986	> 0.90 (Hu and Bentler, 1999)

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Adjusted Goodness of Fit Index (AGFI)	0.928	> 0.90 (Hair et al, 2006)
Normated Fit Index (NFI)	0.994	> 0.90 (Hu and Bentler, 1999)
Comparative Fit Index (CFI)	0.999	> 0.90 (Daire et al, 2008)
Root Mean Square Error of Approximation (RMSEA)	0.048	< 0.08 (Hair et al, 2006)

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 ofemployee 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 modelHair 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. Theindicated 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'sperformance 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 accomplishedthat thehypothesized 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 beneficialto organizations in future to establish the significance of work culture, work environment and degree of fairness in appraising in promoting employee's job commitment, job satisfaction for enhanced performance. Since globalization, the present competitive environmenthas 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 studymight not be fully pertinent to other segmentsor 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 globalizedatmosphere from a different standpoint that will facilitate to enhance employee's productivity and self-esteem.

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