

Role of Coworker relations and Job Satisfaction on the Job Performance Level of Employees: A Sectoral Comparative Study of Public – Private Companies in the Solar Energy Industry of Uttar Pradesh

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Abstract

The study tries to examine the combined effect of coworker relation and job satisfaction on the job performance level of the personnels working in solar energy industry of Uttar Pradesh as well as tries to examine a comparative outlook of the job performance of employees across public and private sector group. The study adopts empirical approach for analysing the result based on primary responses obtained from 110 employees (55 from each sector) through a structured questionnaire on a five-point Likert scale. Correlation and Multiple Regression were employed to examine the relation and impact of independent variables on the dependent variables. Mann U Whitney test was used to compare differences in the dependent variables across both sectoral companies in solar energy industry. Results conclude that both coworker relation and job satisfaction have a fruitful impact on the job performance level of employees as well as the private sector employees reported higher scale of job performance when compared to the same of public sector counterparts within the stated region of study.

Keywords: Coworker Relation, Job Satisfaction, Job Performance, Solar Energy Industry, Uttar Pradesh.

INTRODUCTION

In this modern era, the efficiency and sustainability of any company depend majorly on their employee performance level. Today, employees in any organization are hired not only for completing their work task but also, they are expected to deliver quality assurance, better work productivity, innovations ideas, coordinating team spirit and sense of cooperation responsibility with their routine work in the dynamic business environment. Employee's performance level is driven by multiple organizational factors out of which, relation with the co-workers play a vital role in framing the work performance scale of the employees. Thus, it becomes essential factor to assess the employee job performance level in any organization. Employees in any organization interact often on work related matters, exchange information and coordinate with each other collectively in order to attain the organizational objective. Team spirit and healthy mutual relations among the workers at workplace is very much essential to deliver better employee

work performance and productivity which thereby helps in increasing organizational efficiency. Conversely, an unhealthy and toxic relation among the coworkers will break the team spirit and mutual understanding among them thereby creating an adverse impact not only on employee performance scale but also on the organization goal perspective. Employee performance level is also affected by their respective job satisfaction scale at workplace. Job satisfaction is a phenomenon which states the perception of employee with their job or in other words it states the contentment level, positive feelings or attitude that employee holds for their specific job. Employees who are highly satisfied with their job generally deliver better work productivity, work efficiency, responsibility and commitment towards their job. Adversely, one's who are not too much satisfied may deliver lower work productivity, absenteeism and negative attitude regarding their job. Therefore, examining the satisfaction scale of employees with their job also becomes an important factor along with the co-worker relation while assessing the employee job performance outcomes in any sector.

Concerning with the solar energy industry which has shown a mammoth growth in the renewable energy sector worldwide, the role employee's respective relation with their coworkers and their respective satisfaction scale with the job generally plays a prominent role in defining their performance level individually as well as on organizational level. With the robust growth of solar energy sector globally it employs a huge level of technical and skilled workforce in different solar organizations or work settings, who continuously interact with their team mates, colleagues, supervisors and other team members while performing their job in this tech driven sector. Apart from that the workforce being employed needs to be satisfied with their job along with a healthy coordinating working environment with their team mates to deliver better organizational work performance. Within regional context of Uttar Pradesh being most populated state of India, the Solar Energy Industry has shown a rapid growth in recent years which is continuously backed up by sustainable Government policies both at Centre and State level as well as there is a massive investment by the private entrepreneurs thereby establishing a blend of public and private sector solar energy companies in the emerging sector to combat the needs of the society and grow up their business ventures.

With a combination of public – private companies who are operating in the solar energy industry within the regional boundary of state of Uttar Pradesh, dissimilarities among workers who are employed in both sectoral companies may exist in terms of their respective job perception and relation with their other organizational coworkers that may create a variation in the performance level of employees across both type of sectoral organizational settings within the solar energy industry, thereby drawing attention towards elevating and enhancing the performance level of employee working in the solar energy industry.

[A] Problem Statement: Employee performance level is a key factor which drives the momentum and growth of companies in the emerging solar energy sector. By employing skilled and technical workforce, companies focus to have better work performance that helps in achieving organizational sustainable goals efficiently and effectively. Worker's performance level is somehow influenced by their work satisfaction scale along with the team spirit or mutual relation and coordinating relation with other staff. With a emerging and rapid growth of solar energy industry within the boundary of Uttar Pradesh constituting of both public-private solar energy companies, differences in the sectoral workers relations and satisfaction index may hinder the performance scale of the employee across the sector.

With the previous studies being undertaken by various researchers contributing in terms of above stated variables across various sector, it was found that no attention has been made specifically towards solar energy industry operating in Uttar Pradesh with no empirical and comparative evidence for examining the

impact of coworkers relation and employee job contentment level on the performance level of employees within the solar energy industry as well as to give a comparative outlook for differences if any in the performance scale of employees across both type of work setting within the stated solar energy industry of Uttar Pradesh. Thus, making it essential to explore how the performance level of employees within the solar energy industry is impacted by the above stated variables along with to identify any sectoral deviation in the work performance level of workers for the stated energy sector.

[B] Need of Study: The study having empirical evidence holds crucial importance in scholarly and practical domain. By analysing the joint effect of employee's relations with other coworkers and job contentment level in framing the overall performance level of the all the employees in the emerging and rapid growing solar energy industry and also by empirically stating the sectoral differences in the public-private solar companies in term of employee job performance, the study identifies a paramount research gap in the scholarly terms. Though some similar studies have been undertaken previously covering a very few of renewable energy sector but a empirical evidence of the same in the solar energy industry which is growing rapidly across the state of Uttar Pradesh is yet to be undertaken which will give important insight about how the performance scale of employee in this growing tech savvy sector is influenced by the satisfaction which employee perceive with their job along with their mutual relations with the team mates across both the public- private sectoral companies and help to assess any deviation in the performance index of employees across both the sectoral companies.

From practical domain, this study would be very much helpful to the policymakers and human resources managers for both the type of sectoral companies to understand and frame effective human resource plans and policies which help in boosting overall performance index of workers within the solar energy industry as well as take all corrective measures to maintain a coordinating team spirit and satisfied workforce in order to retain skilled, effective and efficient workforce which would help to increase organizational efficiency.

On the whole the study tries to deliver a fruitful result in understanding the role of the worker satisfaction scale with job and their relation with team workers on job performance index across public and private sector solar companies. Through a comparative outlook of performance scale across both sectoral companies, the study provides appropriate recommendation to both sectoral policymakers in further upliftment of employee performance scale not only for individual well-being but also for organizational and industrial sustainable growth in future.

[C] Objectives of the Study: Following objectives are attached with the present study-

1. To statistically determine level of correlation among the employee's job performance level, satisfaction level at job and relation with the coworkers for the employees working in solar energy industry of Uttar Pradesh.
2. To determine how much level of employee job performance is being collectively influenced by employee's job satisfaction level and their relation with the coworkers within the solar energy industry of Uttar Pradesh.
3. To assess differences in the job performance level of the employees working among public and private sector companies within the solar energy industry of Uttar Pradesh.

[D] Hypothesis of the Study: Based on the above stated objectives, following hypothesis are framed for the study:

For objective 1: To statistically determine level of correlation among the employees' job performance level, satisfaction level at job and relation with the coworkers for the employees working in solar energy

industry of Uttar Pradesh.

- **H₀₁ (Null Hypothesis):** Level of employees' job performance, job satisfaction and relation with coworkers do not significantly correlate with each other
- **H₁₁ (Alternate Hypothesis):** Level of employees' job performance, job satisfaction and relation with coworkers significantly correlate with each other

For objective 2: To determine how much level of employee job performance is being collectively influenced by employee's job satisfaction level and their relation with the coworkers within the solar energy industry of Uttar Pradesh.

- **H₀₂ (Null Hypothesis):** Coworker relation and job satisfaction level of employees do not significantly predict the employees' job performance level
- **H₁₂ (Alternate Hypothesis):** Coworker relation and job satisfaction level of employees significantly predict the employees' job performance level

For objective 3: To assess differences in the job performance level of the employees working among public and private sector companies within the solar energy industry of Uttar Pradesh.

- **H₀₃ (Null Hypothesis):** Job performance level of the employees working in public and private sector solar energy companies do not significantly differ with each other.
- **H₁₃ (Alternate Hypothesis):** Job performance level of the employees working in public and private sector solar energy companies do not significantly differ with each other.

LITERATURE REVIEW

Following previous studies have been reviewed for the present study:

1. **B. Poljašević (2021)** tried to establish a relation between personal relationship among the work colleagues and the satisfaction index of employee with job for sample workers. Using descriptive statistics and correlation it was found that healthy relation with work colleagues helps to boost up the happiness index of employee with their respective job that overall induces the job performance level and efficiency of organizations.
2. **Sharada Chapagain (2022)** tries to analyse the influence of various organizational factors on the satisfaction scale of restaurants employees in Nepal using correlation and regression analysis. Findings of the study stated that remuneration and relation with colleagues was found fruitful in uplifting the job happiness of human resource managing staff in restraint industry of Nepal
3. **Djoko Setyadi (2023)** analysed the effect of relations with coworkers on job satisfaction and job performance for workers employed in agricultural products in Indonesia using Partial least square analysis technique. The study concluded that the coworker support and satisfaction scale of workers positively affects the work performance. Also, coworker support was found positively related with job satisfaction score for the study.
4. **Abdillah (2023)** reviewed more than 30 studies from the past five years related to job satisfaction of employee and their work performance using PRISMA technique for analysing the results of past studies. The result of analysis states that employee performance is generally influenced by the contentment level with the job and the job contentment level is likely affected by the overall work environment, work commitment and motivation at job.
5. **M. Pratama (2024)** assessed the mediating role of job satisfaction in examining the influence of coworker relations and motivation on the performance scale of public sector employees in Bankyak city. Using multiple linear regression analysis, it was found that both employee's relation with

coworkers and their satisfaction scale with job positively contribute towards performance level of employees but the job satisfaction index could not help in mediating the influence of relation with coworkers on the performance scale of employees.

6. **Fe Addele (2024)** in the study tries to establish a association between the job satisfaction scale of nurses employed in hospitals at Jeddah with their respective work performance level. Using descriptive statistics and correlation analysis the study concluded that there exist a positive association between the happiness scale of nurses with their job and their respective medical related work performance stating how better performance in medical industry can be attained by making the medical representative satisfied with their job role.
7. **Nguyen Thu Huyen (2025)** tried to examine the relationship among the performance level, employee satisfaction scale and work loyalty among a segment of travel agencies employees in Hanoi City. The study reported that higher level of job satisfaction at works turns to deliver higher work performance with better work productivity and employee loyalty being fruitful for changing tourism business industry.
8. **ROGITH (2025)** tried to assess the impact of teachers' satisfaction level with their job on their respective work performance role focusing on various on some work related which includes relation with peer workers at educational institution in Tanzania. Using descriptives statistics and regression analysis, it was concluded that positive relations with peer teachers not only helped to improvise the satisfaction index of sample teachers with the job but also induced the performance level with the job thereby suggesting to improvise healthy work relations among the staff to overall increase the work performance and productivity in the education sector.

Research Gap: After reviewing multiple above studies being previously undertaken by various scholars related to employees' satisfaction with job, their relation with coworkers and their respective job performance scale across diversified working sectors including those of education, tourism, hospitals and nursing, agriculture and many more from various geographical domains, it was found that the solar energy industry of state of Uttar Pradesh is still untouched. As this industry is growing rapidly creating multiple job opportunities for the skilled workers across the state with both public and private sector companies, a study regarding the above stated key factors of the present study is essential to examine the combined effect of workers contentment level with the job and their relation with peers on the workers job performance scale in the solar energy industry operating in the Uttar Pradesh.

Apart from that a comparative outlook regarding the work performance level of the employees working across both public and private sector solar companies is also unaddressed till now. Thus, the present study tries to examine how the performance scale of employees in solar energy industry of Uttar Pradesh is driven by their respective job satisfaction index and relation with coworkers on the whole. Additionally, any differences in the performance scale of employees working across both public and private companies for the stated renewable energy sector is also evaluated and addressed which will further help in future in framing effective human resource plans for increasing employee productivity.

RESEARCH METHODOLOGY

[a] Research Design- The present study adopts analytical and comparative research design to evaluate the joint effort of employees' coworker relation and work satisfaction scale on the respective job performance level of the employees working in public and private sector companies of the solar energy

industry of Uttar Pradesh. The study also compares the work performance index of employees working across both sectoral groups of companies for the specific stated area of study.

[b] Variables of the study: Generally, the variables of the study can be classified in two terms while analysing the result of the study:

- **Dependent Variable-** Job Performance Level of employees
- **Independent Variables-** Coworker relation and job satisfaction level of employees

[c] Sampling framework

- **Sampling Units-** Since it was quite difficult to collect data from all the employees working in both type of sectoral companies in the solar energy industry of Uttar Pradesh, a sample data was being collected from the employees belonging to both sectoral group companies which further serves as a sample base of information being gathered from employees of both sectoral groups for examining the results of the study.
- **Sampling Technique-** Convenience and snowball sampling
- **Sample Companies** – Public and private sector solar energy companies operating within the geographical boundary of Uttar Pradesh
- **Sample Size-** 110 employees from both sectoral groups. [55 from public companies and 55 from private companies]

[d] Data Collection- Data was collected from the sample respondents of the study through a structured questionnaire consisting of multiple questions related to employees' coworker relations, job satisfaction scale and job performance level on a 5-point Likert scale [5= Strongly Disagree, 2= Disagree, 3= Neutral, 4=Agree, 5=Strongly Agree]

[e] Analysis of Data- Data collected from the sample respondents of both sectoral groups was analysed using reliability analysis, Spearman rank Correlation and multiple regression to examine the effect independent variables on the dependent variable of the study. Moreover, the dependent variable of the study was compared across the public-private sectoral groups using Mann U Whitney test to examine difference's if any in the performance level of employees working in public and private sector solar companies within the boundary of Uttar Pradesh.

ANALYSIS & INTERPRETATION

This section deals with analysis of the responses being gathered for the study in order to examine the combined effect of personnel satisfaction level with job and relations with coworkers on their job performance scale for the employees working in solar energy industry of Uttar Pradesh. For analysing the results of current study, multiple statistical tools including Spearman correlation, multiple regression and Mann U Whitney test has been used as per the needs of the objectives of the study. The interpretation of result undergoes following steps:

(1) Reliability Analysis: Cronbach Alpha score was used to check the internal consistency and reliability of the responses gathered from the questionnaire consisting of multiple questions across various study variables.

Table 1: Cronbach Alpha Score

Variable	Number of Questions	Cronbach Alpha Score
Coworker Relation	4	.857
Job Satisfaction	4	.853

Job Performance	4	.950
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Source: Author Calculation through SPSS.

The Cronbach Alpha score of all the questions across all the three variables was found good, making it justified for objective analysis.

(2) Objective Analysis: The results of the study were analysed using the composite score of the data responses being obtained from multiple questions attached with each study variables based on objectives of the study. The above framed objectives are analysed as under:

Objective 1 : To statistically determine level of correlation among the employees' job performance level, satisfaction level at job and relation with the coworkers for the employees working in solar energy industry of Uttar Pradesh.

Statistical Tool: Spearman Rank Correlation was being used to analyse the level of correlation between the above stated study variables.

Table 2: Correlation among Coworker Relation, Job Satisfaction and Job Performance
Correlations

		Coworker_Relations	Job_Satisfaction	Job_Performance
Spearman's rho	Coworker_Relations	1.000	.753**	.738**
	Correlation Coefficient			
	Sig. (2-tailed)	.000	.000	.000
	N	110	110	110
Job_Satisfaction	Correlation Coefficient	.753**	1.000	.698**
	Sig. (2-tailed)	.000	.000	.000
	N	110	110	110
	Correlation Coefficient	.738**	.698**	1.000
Job_Performance	Sig. (2-tailed)	.000	.000	.000
	N	110	110	110

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

Source: Author Calculation through SPSS.

Interpretation: The Spearman Rank Correlation (r) among all the three sated variables of study were found positively correlated and that too statistically significant. As the level of correlation among Coworker relation, Job satisfaction and Job Performance was found positive with p value =.000 in each case, we will reject the Null Hypothesis (H_{01}) and accept the Alternate Hypothesis (H_{11}) stating that Level of employees' job performance, job satisfaction and relation with coworkers significantly correlate with each other

The association among the variables showed a positive trend thereby indicating that a increase in the value of healthy coworker relation will not only boost up the job satisfaction but also the job performance level of employees working in the solar energy industry. Similarly, a positive job performance level of employee will help to induce the satisfaction index of employee as well as improve the relations of colleagues working in solar energy industry.

Objective 2: To determine how much level of employee job performance is being collectively influenced by employee's job satisfaction level and their relation with the coworkers within the solar energy industry of Uttar Pradesh.

Statistical Tool: Multiple Regression was being used to analyse the joint effect of the independent variables on the dependent variable of the study.

Table 3a: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.775 ^a	.601	.593	.53946

a. Predictors: (Constant), Coworker_Relations, Job_Satisfaction

Source: Author Calculation through SPSS.

The model summary states that there exists a strong positive relation between the dependent variable and both the independent variables. With adjusted R square as .593, it states that 59.3% of job performance level of employees is collectively influenced by both coworker relation and job satisfaction index of employees.

Table 3b: ANOVA Table

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1. Regression	46.841	2	23.421	80.479	.000 ^b
Residual	31.138	107	.291		
Total	77.980	109			

a. Dependent Variable: Job_Performance

b. Predictors: (Constant), Coworker_Relations, Job_Satisfaction

Source: Author Calculation through SPSS.

With F value = 80.479 and p value = .000 being less than .05, ANOVA test states that the regression model is statistically significant and good fit for the study.

Table 3c: Regression Coefficient's Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.026	.295		.088	.930
Job_Satisfaction	.403	.108	.329	3.736	.000
Coworker_Relations	.655	.115	.504	5.716	.000

a. Dependent Variable: Job_Performance

Source: Author Calculation through SPSS.

Regression coefficients for Job Satisfaction and Coworker relation as .403 and .655 respectively both with p value less than .05, thereby indicate that both the above stated independent factors influence the job performance level of employees within the selected area of study.

Multiple Regression Equation: From the above regression coefficients, following multiple regression equation defines the role of both independent factors on the dependent factors.

Job Performance = .026 + .403 Job Satisfaction + .655 Coworker Relation

Interpretation: With positive Beta Values of both the independent variables, the regression equation defines a positive relation among the independent and dependent variable. Constant value = .026 being statistically insignificant defines that the level of job performance is also practically nil when the level of both job satisfaction scale of employees and coworkers' relation is zero or nil. The Unstandardized Coefficients value of Job Satisfaction and Coworker Relation being .403 and .655, both with p value as .000 which is statistically significant indicates that both the predictors have a fruitful impact on the job performance level.

In other words, with one unit increase in the job satisfaction level of employees, their job performance increases by .405 unit. Similarly, with one unit increase in the coworker relation of employees, their job performance increases by .655 unit with all other factors of job performance remaining constant. Thus, from the above two independent predictors have a fruitful impact on the job performance level of employees for the study.

Regression analysis also confirms a positive relation among independent and dependent variables of the study. Adjusted R Square = .593 explains 59.3 % variation on the dependent variables jointly by independent variables for the study. ANOVA test (p value = .000) also confirms the regression model as good fit. Having p value as statistically significant both for correlation and regression, we will thus reject the Null hypothesis (H_{02}) and accept Alternate Hypothesis (H_{12}) stating that Coworker relation and job satisfaction level of employees significantly predict the employees' job performance level

Objective 3 : To assess differences in the job performance level of the employees working among public and private sector companies within the solar energy industry of Uttar Pradesh.

Statistical Tool: Differences if any, in the job performance level of employees working across public-private companies on sectoral basis was analysed using Mann U Whitney test as data was found not

Table 4a: Rank Table

Ranks

	Type of Sector	N	Mean Rank	Sum of Ranks
Job Performance	Public Sector	55	45.78	2518.00
	Private Sector	55	65.22	3587.00
	Total	110		

Source: Author Calculation through SPSS.

Table 4b: Mann U Whitney test Statistics

Test Statistics

	Job_Performance
Mann-Whitney U	978.000
Wilcoxon W	2518.000
Z	-3.210
Asymp. Sig. (2-tailed)	.001

a. Grouping Variable: Type of Sector

Source: Author Calculation through SPSS.

Interpretation: The test statistics declares Mann U Whitney value= 978, Z= -3.210 with p value =.001, which is less than .05 thereby making the test statistically significant. As p value is statistically significant, we will accept the Alternate Hypothesis (H_{13}) stating that Job performance level of the employees working in public and private sector solar energy companies do not significantly differ with each other in the solar energy industry of Uttar Pradesh.

Aligning with the rank table, it is concluded that the job performance mean rank score of private sector employees is higher as compared to the same of public sector employees. Therefore, result conclude that job performance level of the employees working in public and private sector solar energy companies within Uttar Pradesh differ with each other. Wherein, the job performance level of personnel working in private sector companies report higher score when compared to that of the same with the personnel working in public sector companies within the solar energy industry of Uttar Pradesh.

FINDINGS

The results of the study were analysed through the composite score of study variables which tried to assess the joint influence of coworker relation and job satisfaction level on the job performance level of employees working in the solar energy industry of Uttar Pradesh. Responses obtained from the employees for the study showed consistency which were further analysed using multiple statistical tools.

Through Correlation and Regression Analysis, it was found that all the study variables were positively correlated with each other as well as a substantial significant impact of employee coworker relation and job satisfaction was found on framing the performance level of employees working in solar energy industry of Uttar Pradesh.

Comparatively, the job performance level of employees across public- private sector solar companies were analysed using Mann U Whitney test, wherein private sector employees job performance level was found better compared to that of the same with the public sector employees working within the solar energy industry of Uttar Pradesh.

CONCLUSION

The study concludes that there exists a strong positive relation among the employee perception regarding their coworker relation, job satisfaction and job performance level within the solar energy industry of Uttar Pradesh. Through Regression analysis it was found that employees' satisfaction scale with job and their relation with coworker have a significant and fruitful impact on their respective job performance level within the scope of study.

Through comparative analysis, it was concluded that the job performance level of employees working across public- private sector solar energy companies differ significantly. Private sector solar energy

employees exhibit higher level of job performance level compared to that of public sector employees within the solar energy industry. Such higher performance level with the job for the private sector employees can be related or explained with better coworker relation and job contentment level of employees prevailing in the private sector companies of the above stated renewable energy industry as validated by multivariate regression.

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