Chapter-4
4. Results and Discussions
To collect data from the employees of cement companies, one measurement instrument is prepared. Reliability of measurement tool signifies the consistency. To check the reliability of this instrument, SPSS is used to find out the cronbach’s alpha which confirms the reliability of scale. Cronbach’s alpha value is measured which was 0.819 therefore instrument was reliable for collecting data and study.

Quantitative study pertaining to performance management system of cement companies is done wherein important factors have been identified. Data analysis is the process of analyze data wherein data collected from 408 respondents from various level of cement companies in Rajasthan is analyzed with the help of SPSS.

Initially, the data analysis inculcates factor analysis then ANOVA is used. Factor analysis is used to reduce the total items and identify main factors i.e it reduces large number of variables in less number of main factors. This factor analysis is performed on the basis of principal component analysis and varimax rotation. While performing factor analysis, it was decided to have extracted factors those who are having Eigen value 1 or more than 1.

Factor analysis gives different tables of result.

The first table is communalities.

**Communalities:** Communalities table shows that how much of the variance in the variables has been accounted for by the extracted factors.

The principal component communalities (extraction, as the initial are always 1.00) ranging from .506 to .987, thus most of the variance of these variables is accounted for by these factor solution.

If a variable does not share much variance with the other variables or with the retained factors or variables (i.e very less extracted value) then it is unlikely to be useful in defining a factor.

In our communalities table, high variance of each variable therefore we took all the listed items for study.
**Total Variance Explained:**

Total variance explained is the total amount of variability of the original variables explained by each factor solution. In the table of total variance explained, the first column is component or items or variables which are used for study.

In an analysis of 52 items, the initial Eigenvalues show that for each of those 52 factors, how much of the variance in the 52 variables was captured by that factor. Here would be 52 units and each factor’s Eigenvalue corresponds with some portion of those items. If we see, the first Eigen value is 13.887 which accounts for 26.70% (i.e 13.887/ 52) of the total items and next Eigen value is 11.019 which accounts for 21.19% (i.e 11.019/ 52) and so on.

we consider the factors which has Eigen values 1.00 or higher. The factors only be extracted when they have 1 or more than 1 Eigen value herein 9 factors are having more than 1.00 Eigen value therefore only 9 factors extracted and rest were omitted. This is because a factor with Eigen value of 1 account for as much variance as a single variable or factor and that is why only factors that explain at least the same amount of variance as a single variable is worth keeping and the factors that explain the least amount of variance are generally discarded.

The eigenvalues from 13.887 to 1.079 are considered wherein rest all values are less than therefore these values are being omitted.

**Rotated component matrix:**

In the principal component analysis output, the rotated component matrix gives the rotated factor loadings, which represent both how the variables are weighted for each factor and correlation of each variable with each factor. The extraction method produced factor loadings for every item on every extracted factor.

Herein we have rotated component matrix which explains that 9 components extracted have factor loadings in each components. As high factor loading, shows factor association is strongest with the variable. The factor has low factor loading i.e less than 0.5 was not taken.

In first component, we find Q30, Q31, Q39, Q40, Q52 are having .928, .814, .856,.799,.722 high factor loadings and rest values are having low factor loading
which can be suppressed. These 5 variables $Q_{30}, Q_{31}, Q_{39}, Q_{40},$ and $Q_{52}$ represent one factor which can be expressed by one named factor. This is named “Goal Setting”.

Likewise, in second component we find $Q_{33}, Q_{34}, Q_{35}, Q_{45}, Q_{46}, Q_{47}, Q_{48}, Q_{49}, Q_{50}, Q_{51}$ are having $0.888, 0.873, 0.856, 0.998, 0.927, 0.918, 0.850, 0.898, 0.831, 0.729$ high factor loadings these 9 variables represent one factor which is expressed by one named factor called “Career planning and appraisal system”.

Likewise, in third component we find from $Q_{38}, Q_{42}, Q_{43}, Q_{44}$ are having $0.940, 0.974, 0.879, 0.833$ high factor loadings these 4 variables represent one factor which is expressed by one named factor called “Compensation”.

Likewise, in forth component we find from $Q_{26}, Q_{27}, Q_{36}, Q_{37}$ are having $0.852, 0.822, 0.982, 0.789$ high factor loadings these 4 variables represent one factor which is expressed by one named factor called “Role of supervisor”.

Likewise, in fifth component we find from $Q_{22}, Q_{23}, Q_{24}, Q_{25}, Q_{28}, Q_{29}$ are having $0.811, 0.808, 0.787, 0.741, 0.915, 0.908$ high factor loadings these 6 variables represent one factor which is expressed by one named factor called “Performance review”.

Likewise, in sixth component we find from $Q_{1}, Q_{2}, Q_{10}, Q_{11}, Q_{12}, Q_{20}, Q_{21}, Q_{41}$ are having $0.881, 0.877, 0.821, 0.796, 0.782, 0.776, 0.771, 0.824$ high factor loadings these 8 variables represent one factor which is expressed by one named factor called “Learning and feedback”.

130
Likewise, in seventh component we find from Q3, Q4, Q19 are having .875, .899, .989 high factor loadings these 3 variables represent one factor which is expressed by one named factor called “Reward and recognition”.

Likewise, in eighth component we find from Q6, Q7, Q8, Q15, Q16, Q17, Q18, Q32 are having .837, .801, .781, .717, .918, .886, .871, .976, high factor loadings these 8 variables represent one factor which is expressed by one named factor called “Personal benefits”.

Likewise, in ninth component we find from Q5, Q9, Q13, Q14 are having .834, .875, .922, .934 high factor loadings these 4 variables represent one factor which is expressed by one named factor called “Work freedom”.

Herein 52 items are reduced and came as 9 factors.

**Final Result**: These core 9 factors Goal setting, career planning and appraisal system, compensation, role of supervisor, performance review, learning and feedback, reward and recognition, personal benefits and work freedom are identified by doing this study that they are highly important for the cement companies.
ANOVA

To check our hypotheses, we run ANOVA that which of the hypotheses are true. We have taken level of significance $\alpha = 0.05$ and $p$ is the significance value. If $p \leq \alpha$ then null hypothesis to be rejected and if $p > \alpha$ the null hypothesis to be accepted.

We run one way ANOVA in SPSS with factors and demographic variables. In analysis table, the significance value help to determine if condition means were relatively the same of if they were significantly different from one another. If sig. value is greater than 0.05 then there is no statistically significant difference and if sig. value is less than 0.05 then there is a statistically significant in the means.

In ANOVA result table, F values in the column shows ratio of two mean square values. Whenever null hypothesis is true, F value is expected to have a value close to 1.00 most of the time and if a large F ratio means that the variation among group means is more i.e a large value of F indicates relatively more difference between groups than within groups.

A one way ANOVA is conducted to compare the effect of factors on gender wherein result shows

1 In personal benefits row the $p$ value is 0.049 which is less than 0.05 and the F value is 3.894. It means that there is statistically significant difference in means. In this case null hypothesis is rejected and alternative hypothesis is accepted.

2 If we see other factors such as goal, career planning, compensation, role of supervisor, performance review, feedback, reward and recognition and work freedom, these $p$ values are greater than 0.05 and their most of them F values are approximately near to the 1.00. It means that there is no statistically significant difference in means therefore in this case null hypothesis is accepted and alternative hypothesis is rejected.

For personal benefit factor p value is less than 0.05 therefore null hypothesis is rejected and alternative hypothesis is accepted but rest of these factors we
have p value is more than .05 herein the null hypothesis is accepted and alternate hypothesis is rejected. Eventually, for personal benefit factor gender has significant difference whereas rest factors do not have any significant difference for gender. Except personal benefit factor, factors of PMS have same significance for any of the gender i.e either male or female, they have same significance.

A one way ANOVA is conducted to compare the effect of factors on age wherein result shows

1. In career planning row the p value is 0.024 which is less than 0.05 and the F value is 2.837. It means that there is statistically significant difference in means. In this case null hypothesis is rejected and alternative hypothesis is accepted.

2. If we see other factors such as goal, compensation, role of supervisor, performance review, feedback, reward and recognition, personal benefits and work freedom, these p values are greater than 0.05 and their most of them F values are approximately near to the 1.00. It means that there is no statistically significant difference in means therefore in this case null hypothesis is accepted and alternative hypothesis is rejected.

For career planning factor p value is less than 0.05 therefore null hypothesis is rejected and alternative hypothesis is accepted but rest of these factors we have p value is more than .05 herein the null hypothesis is accepted and alternate hypothesis is rejected. Eventually, for career planning factor age has significant difference whereas rest factors do not have any significant difference for age. Except career planning factor, factors of PMS have same significance for any of the age i.e for any age, they have same significance.

A one way ANOVA is conducted to compare the effect of factors on education wherein result shows
1 In role of supervisor row the p value is 0.025 and F value is 2.817, in personal benefits row the p value is 0.002 and F value is 4.459 herein all p values are less than 0.05. It means that there is statistically significant difference in means. In this case null hypothesis is rejected and alternative hypothesis is accepted.

2 If we see other factors such as goal, compensation, career planning, performance review, feedback, reward and recognition and work freedom, these p values are greater than 0.05 and their most of them F values are approximately near to the 1.00. It means that there is no statistically significant difference in means therefore in this case null hypothesis is accepted and alternative hypothesis is rejected.

For role of supervisor and personal benefits factors p value is less than 0.05 therefore null hypothesis is rejected and alternative hypothesis is accepted but rest of these factors we have p value is more than .05 herein the null hypothesis is accepted and alternate hypothesis is rejected. Eventually, for role of supervisor and personal benefits factors, education has significant difference whereas rest factors do not have any significant difference for education. Except role of supervisor and personal benefits factors, factors of PMS have same significance for any of the education i.e for any education, they have same significance.

A one way ANOVA is conducted to compare the effect of factors on designation wherein result shows

1 In career planning row the p value is 0.028 and F value is 3.072, in compensation row the p value is 0.010 and F value is 3.803, in feedback row the p value is 0.036 and F value is 2.879 herein all p values are less than 0.05. It means that there is statistically significant difference in means. In this case null hypothesis is rejected and alternative hypothesis is accepted.
2 If we see other factors such as goal, performance review, role of supervisor, reward and recognition, benefits and work freedom, these p values are greater than 0.05 and their most of them F values are approximately near to the 1.00. It means that there is no statistically significant difference in means therefore in this case null hypothesis is accepted and alternative hypothesis is rejected. For career planning, compensation and feedback factors p value is less than 0.05 therefore null hypothesis is rejected and alternative hypothesis is accepted but rest of these factors we have p value is more than .05 herein the null hypothesis is accepted and alternate hypothesis is rejected. Eventually, for career planning, compensation and feedback factors, designation has significant difference whereas rest factors do not have any significant difference for designation. Except career planning, compensation and feedback factors, factors of PMS have same significance for any of the designation i.e for any designation, they have same significance.

A one way ANOVA is conducted to compare the effect of factors on **years of service** wherein result shows

1 If we see all factors such as goal, career planning, performance review, compensation, role of supervisor, reward and recognition, feedback, benefits and work freedom, these factor’s p values are greater than 0.05 and their most of them F values are approximately near to the 1.00 or less. It means that there is no statistically significant difference in means therefore in this case null hypothesis is accepted and alternative hypothesis is rejected.

Eventually, for every factor of PMS does not have any significant difference for designation i.e for any year of service, they have same significance.
Final Result:

If we see that only personal benefits, career planning, role of supervisor, compensation and feedback factor have significant difference with demographic variables but rest factors goal setting, performance review, reward and recognition and work freedom do not have significant difference with demographic variable.
Chapter-5
5. Summary and Conclusion
Performance management is very important aspect of human resource management for any organization. In India, development is taking place very fast in recent years therefore cement companies are being evaluated most important companies. Cement companies must have effective performance management system, if cement companies are having performance management system then it must be reviewed to see the effectiveness of the system. In years back, performance appraisal system was in use wherein ratings were given to the employees, once in a year or twice in a year. Now it has been transformed in performance management system wherein continuous monitoring and improvement of employees are to be recorded. Therefore this study is done for performance management system of cement companies instead of performance appraisal system.

The researcher found in the literature review that many studies are done on performance management system of different companies in India and abroad. In these studies, different factors were found (i.e goal setting, fairness of appraisal system, feedback, merit pay etc) for different organizations that were having importance for them. These factors were generally not more than 3 to 4 for any organization whereas in this study, nine factors of PMS i.e goal, career planning, performance review, compensation, role of supervisor, reward and recognition, feedback, benefits and work freedom are having importance for the cement companies. It clearly indicates that either cement companies performance management system is not effective or system is missing. These factors required proper implementation to the cement companies those who are not having PMS and if cement companies have already PMS system then these factors must be considered.

The important nine factors are:

**Goal setting:** It is the initial stage of performance planning wherein organization and department goals and objectives must be clearly defined and easy to understand by the employee. It decides inputs and corresponding output by the employee as well as fixes accountability of employee for the tasks, assigned to them.

**Career planning and appraisal system:** Career planning system must be clearly defined to the employees and appraisal system must be clearly defined and documented as well as easy to understand by the employees.
**Compensation:** Pay and promotion decisions must be linked with the performance achievements.

**Role of supervisor:** Supervisors must be able to handle performance the performance of subordinate and must be concentrating on managing performance rather than controlling.

**Performance review:** Performance review is for employee to develop and grow therefore performance review must be done periodically and continuous interaction of supervisor with employee. The review must be based on factors previously agreed upon. There must be system defined to observe and fill the competency gap.

**Learning and Feedback:** Learning is the continuous process which must be at work place as well as outside from the organization because technology is developing very fast and competitiveness is being increased every day. Continuous learning make employee up to date with current scenario and this gives employee to develop new competencies and grow. Therefore, there must be a system for identify training needs. Feedback is mirror to show employee performance therefore continuous feedback must be given as soon as activity is performed.

**Reward and recognition:** There must be clearly defined system for reward and recognition of employees for their motivation.

**Personal benefits:** Job security is the major concern for every employee therefore it must be clearly defined. Work life balance, basic amenities etc are the major concerned which are to be taken care.

**Work freedom:** Work autonomy, participative decision making and value of ideas can be entertained to some extent wherever required.

After determining the important PMS factors, we analyzed their relation with demographic data wherein it has been found that most of the factors are not having much significant difference with gender, age, education, designation and year of service therefore PMS factors do not have much significance for gender, age etc. It does not affect that what gender you are or what age you are but the factors are important for cement company’s PMS.
Chapter-6
6. Implications and suggestions
This extensive study is done to know the important factors of performance management system for cement companies in Rajasthan and these important factors have any significance on demographic variables, used for the study. Based on overall study, researcher has strong opinion that these implication and suggestions will help to the cement companies at the time of introduction and implementation of performance management system. If PMS is already implemented then this can make improvement in their performance management system.

After factor analysis, we have identified the core important factors which are goal setting, career planning and appraisal system, compensation, role of supervisor, performance review, learning and feedback, reward and recognition, personal benefits and work freedom. These factors are important for the cement companies and acceptance of these results will make the cement company’s performance management system more effective when they enable these PMS factors in their organization and they can achieve better than the present.

By literature review, it has been found that in Indian and international organizations there are some (i.e 2, 3 factors) factors which were important to be implemented or to be introduced. Herein, 9 important factors found i.e goal setting, career planning and appraisal system, compensation, role of supervisor, performance review, learning and feedback, reward and recognition, personal benefits and work freedom which shows that cement companies are required to see their performance management system. Because any of the company who is lacking with these important aspects of PMS then they must review their performance management system.

This study suggests to cement companies of Rajasthan to review their performance management system and if they are lacking with these factors then introduction is required for effective PMS. In case, cement companies are having these factors in their PMS then they must review their PMS and do effective implementation.

If any cement company is having performance appraisal system then it can be transformed from performance appraisal to performance management system with these important PMS factors for effective PMS system.

These PMS factors are useful for cement companies as well as academicians wherein academicians can go for further research and can suggest other important aspects.
When these important PMS factors were analyzed with demographic variables then result shows that most of the factors are not having much significant difference with gender, age, education, designation and year of service therefore researcher suggests that PMS factors do not have much significance for gender, age etc. It does not affect that, what gender you are or what age you are but the factor is important for cement company’s PMS.

This study helps to cement industries, academicians, researchers etc. In cement industry, with increasing competition and paradigm shift, strategic decisions are very important therefore top management are required to consider factors of PMS in their strategic decisions. Middle and lower management employees will be benefitted with low attrition rate, high motivation and job satisfaction that will lead to increase employee productivity. In academic courses like MBA, MHRM etc, these findings can be imparted for practical approach with the text. Researchers can take forward this research to Indian or international context.

The future research can be done in Indian or global context of performance management system for cement companies.

Future research can be done in Rajasthan with the context of factors of human resource management systems in cement companies, to have broader view.