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A Study on Retention Analysis of Employees Working in Indian Construction Industry

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Abstract: ***Indian Construction Industry is famous for its rigid work structure. Since the industry involves multiple tasks to be performed on daily basis, it is difficult to manage people from distinct backgrounds. Human resource is focused less in Indian construction industry but it is the most influential parameter to decide success of any type of project. Hence, the main objective of the research is to analyse retention parameters of employees working within construction industry to regulate migration probability. Totally four major construction companies with their works at Telangana (Hyderabad) and Sikkim (Chungthang) are referred for research purpose. A questionnaire is prepared after going through detailed pilot survey listing personal parameters and twelve factors which can retain employees. This questionnaire is distributed to one hundred and twenty five employees; of this only one hundred samples are retrieved back. SPSS (Statistical Package for Social Sciences) is used to interpret the data so collected.***

Keywords: Indian Construction Industry, Retention, Questionnaire, SPSS.

I. INTRODUCTION

India is a promising country as per its economy is concerned. In such a country if one of the prime sector i.e. construction sector gets aggravated, then development of the country gets disturbed. Construction industry is the second largest industry in India next to agriculture sector. As per 14th Engineering congress on human capital development is concerned, in time to come India will face curtailment in its workforce even to take some basic infrastructure works. This is just because of increasing migration rates in the industry due to its scanty organizing structure. Hence to understand migration rates a retention analysis is mandatory so that it can be minimized. After referring research papers, it is observed that most of the authors have restricted themselves to all other sectors except construction sector. This designates the importance of study on retention analysis. Initially twelve factors which can retain an employee in the construction industry are identified after going through diverse research papers. A pilot survey is performed to review the possible existence of additional factors. With these factors a questionnaire is prepared containing two parts. Part A contains personal details of respondents like: gender, designation, marital status, size of the respondent's family, experience of the respondent, age of the respondent, salary of the respondent per month, number of companies worked in so far. Part B contains twelve factors which can retain an employee working in the current construction company. Factors for employee retention are given below:

Talent based assignments- F1, Flexible work structure-F2, Good work environment-F3, Even distribution of workload-F4, Provision of recreations-F5, Addressing grievances on time-F6, Good salary package-F7, Good communication within the organization-F8, Provision of childcare/adult care facilities-F9, Displaying employee achievements-F10, Proper training before allocation of any work-F11 and Provision of free medical treatment-F12. Here "F" indicates factor. Totally 125 samples are distributed amongst employees working at four distinct construction enterprises situated in Hyderabad (Telangana State) and Chungthang (Sikkim). 100 questionnaires are admitted finally giving a response rate of 80%. SPSS (Statistical Package for Social Sciences) V.23 is used to interpret the data obtained.

II. RESEARCH ANALYSIS

First analysis done in the research work is finding out Relative Importance Index (RII) for all the twelve factors which promote employee retention. This index gives weight scores to the corresponding factors. The formula used for the analysis is shown in Equation 1.

$$RII = \frac{\sum W}{A*N} \quad \text{.....Eq. 1}$$

Here, W is weightage given to individual factors by the respondents in a range from 1 to 5. A is the highest weightage given to the respective factor and N is the total number of respondents. In a five point likert scale 1 indicates very low, 2 indicates low, 3 indicates moderate, 4 indicates high and 5 indicates very high. If the index value is less, it indicates slighter importance and more index value symbolizes massed importance. From frequency analysis minimum and maximum points on likert scale is obtained and is represented in table 1. For all the twelve factors the maximum point preferred is very high i.e. 5. The minimum point on likert scale is 2 for factor 1 (talent based assignments), factor 8 (good communication within the organization) and factor 10 (displaying employee achievements). For the remaining factors the minimum point on likert scale is 1. So, it is evident from the data obtained that employees gave more priority to factor 1, factor 8 and factor 10 for minimum response category. RII is least for factor 9 (provision of childcare/adult care facilities) with a value of 0.606. Factor 9 follows factor 6 (addressing grievances on time) with a value of 0.684. Maximum RII is wangled by factor 7 (good salary package) with a value of 0.902. Factor 2 (flexible work structure) follows factor 7 with RII value 0.846.

Table 1: Relative Importance Index

	Likert Scale Points						**Responses**		
Retention Factor	**1**	**2**	**3**	**4**	**5**	**Total (N)**	**Min.**	**Max.**	**RII**
F1	0	3	17	52	28	100	2	5	0.81
F2	1	2	15	37	45	100	1	5	0.846
F3	2	4	11	51	32	100	1	5	0.814
F4	2	4	11	38	45	100	1	5	0.84
F5	8	11	19	34	28	100	1	5	0.726
F6	5	18	22	34	21	100	1	5	0.696
F7	2	2	10	17	69	100	1	5	0.902
F8	0	7	22	38	33	100	2	5	0.794
F9	26	15	14	20	25	100	1	5	0.606
F10	0	3	22	47	28	100	2	5	0.8
F11	8	16	22	29	25	100	1	5	0.694
F12	10	16	22	26	26	100	1	5	0.684

These twelve factors are supplemented in two groups viz. based on work culture and personal satisfaction. These factors are delineated in table 2 with each group containing 6 factors. Both work culture and personal satisfactory groups are compared to obtain average value of RII. Average value fetched by work culture related factors is 0.799 which is more than 0.73 which is obtained for personal satisfactory factors. Difference between the two averages is 0.069. Since this fraction is very small, it emphasizes seriousness of both the groups considered for the analysis.

Table 2: Relative Importance Index-Grouping

Work culture factors		**Personal Satisfactory factors**	
Factors	**RII**	**Factors**	**RII**
F1	0.81	F5	0.726
F2	0.846	F6	0.696
F3	0.814	F7	0.902
F4	0.84	F9	0.606
F8	0.794	F10	0.8
F11	0.694	F12	0.684
AVG	0.799	**AVG**	0.73

Personal parameters of the respondents are analyzed using simple descriptive statistics. Initially marital status is analyzed. It is espied from table 3 that the frequency of married employees is more than those single. Since personal parameters can affect retention parameters, they are considered for the research. Respondents are classified on the basis of their designation as: managers, senior engineers, engineers, supervisors and surveyors. From table 4, the frequency of engineers is at peak with a value of 59 out of 100. Minimal count is seen for supervisors and surveyors with 6 and 7 out of 100. Managers and senior engineers have an equal frequency of 14.

Table 3: Marital Status

Status	Frequency
Married	55
Single	45

Table 4: Designations

Designations	Frequency
Managers	14
Sr.Engineers	14
Engineers	59
Supervisors	6
Surveyors	7

From table 5 it is noticed that size of the family of the respondents vary from 1 to 8 including them whom they are supposed to feed. Frequency of employees is measured as 64 if the family size is within 4-6. It is recorded as maximum compared to other family size ranges. Frequency is found minimum for family range within 7-8 with a value of 1.

Table 5: Size of the family

Range	Frequency
1-3	35
4-6	64
7-8	1

Table 6 indicates salary package of all the 100 employees in terms of thousands. It is heeded from table 6 that 44 employees are getting salary in a range of 10000 to 20000 INR per month. Frequency is recorded maximum for this salary range. Least frequency of 9 is obtained for salary range of 51000 to 320000 INR per month. This package is offered for project managers working within the organizations. It is espied that of all the employees responded; only one receives 320000 INR per month.

Table 6: Salary Package

Range (1000's)	Frequency
10-20	44
21-30	29
31-50	18
51-320	9

Table 7 indicates age variation of employees. It is remarked that most of the employees are youngsters with age variation between 22 to 30 years. Frequency noticed for this category is 61 which is paramount compared to other categories. It is heeded that the frequency of highly experienced employees is less with a value of 7 in age variation within 52-57.

Table 7: Age

Range (Yrs)	Frequency
22-30	61
31-50	32
51-57	7

Table 8 is drawn for experience of employees. It is recorded that most of the white laborer is having experience within 3 to 15 years with a frequency of 48. Variation in the frequency for 16 to 32 years and 0.2 to 2 years is 4. This indicates close significance between these two experience categories.

Table 8: Experience

Range (Yrs)	Frequency
0.2-2	28
3-15	48
16-32	24

Pearson correlation analysis is done for independent variables and dependent variables. Here personal parameters of employees are considered as independent variables e.g. designation, marital status, size of the family, experience, age, salary and number of companies worked in so far is a dependent variable. Main prospect of the correlation analysis is to correlate significance between two variables. Using this concept a correlation matrix is developed which is shown in table 9.

Table 9: Correlation Matrix

	Designation	Marital Status	Size of Family	Experience	Age	Salary	No. of Companies worked in so far
Designation	1						
Marital Status	0.22	1					
Size of Family	-0.088	0.214	1				
Experience	-0.533	-0.561	0.127	1			
Age	-0.562	-0.608	0.129	0.962	1		
Salary	-0.454	-0.291	0.079	0.448	0.429	1	
No. of Companies worked in so far	-0.203	-0.428	0.075	0.707	0.662	0.142	1

Correlation value varies from -1 to +1. Zero value indicates no correlation between variables. Positive correlation indicates tandem movement of two variables while negative correlation indicates retrograde movement of one variable over other. A correlation of 0.22 is espied for marital status and designation. This value is small but positive. It indicates parallel one way movement of designation and marital status. Size of the family gives a negative correlation of 0.088. This value is too small to be considered for developing any relationship. It indicates opposite movement of designation over the size of family. Experience of employees gives two negative correlations when compared with designation and marital status. The values are around 0.5 which is halfway the maximum limit. This correlation is given priority compared to the previous one due to its statistical value. Age of the employees gives negative correlation when it is compared with designation, marital status. It gives a strong positive correlation of 0.962 when it is compared with experience. It clearly indicates increase in experience with age. When salary is compared with other demographic details, no hefty correlation is espied. A strong positive correlation is discerned when number of companies worked in so far is compared with experience and age of employees.

Table 10: Test of equality of group means

Independent Variables	F	Sig.
Designation	.059	.81
Marital status	.143	.71
Size of family	.354	.55
Experience	.259	.61
Age	.061	.81
Salary	.354	.55
No. of Companies worked in so far	4.342	.04

Discriminant analysis is used to discriminate between two groups of employees working within organization i.e. employees who want to migrate and those who would not. Prospect of this analysis is to develop an equation for migration. Since migration is polar to retention, the obtained equation simulates steps needed to be taken for its derogation. Table 10 exhibits tests of equality of group means where personal details of employees are represented as independent variables. F Value retrogrades with significance value. It is heeded from table 10 that "number of companies worked in so far" is most popular amongst other independent variables with a significance value of 0.04. Significance value is noted maximum for designation with retrograding F Value. As per null hypothesis concept, significance value is restrained to 0.05. This value is greater than 0.04, hence it indicates rejection of null hypothesis. So, all the independent variables except number of companies worked in so far are eradicated for discriminant analysis. Table 11 marks canonical discriminant functional value for number of companies worked in so far as -0.62. Constant value to be used for the analysis is obtained as -3.55. Referring table 11, migration score is developed which is shown in equation 2. This score is useful in determining retention nature of employees from current organization.

Table 11: Canonical discriminant function coefficient

Independent Variables	Functional Coefficient
No. of Companies worked in so far	-.62
Constant	-3.55

Migration Score = -0.62 × No. of Companies worked in so far – 3.5……Eq. 2

Respondent's feedback on a question "will you migrate" gives perception about their current organization. This feedback may or may not be correct. So, it is difficult to establish a true relationship for such type of question. Hence, individual feedback for all the twelve factors is mandatory. Table 12 indicates functional values as -0.27 for response "yes" and 0.28 for response "no".

Table 12: Functions at group centroid

Will you Migrate	Functional Values
Yes	-.27
No	.28

Cutting score is obtained referring equation 3. In this equation C_S is called as cutting score. F_A represents functional value of response "yes" for a question "will you migrate" and F_B represents functional value of response "no". Table 12 is used to calculate cutting score. Here F_A is taken as -0.27 and F_B is taken as 0.28.

$$C_S = F_A + F_B/2 \text{ ……Eq. 3}$$
$$C_S = -0.27 + 0.28/2$$
$$C_S = 0.005$$

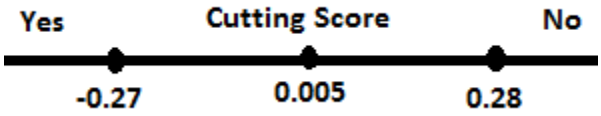

Fig 1: Migration cutting score

Migration score between 0.005 till -0.27 or less indicates employee migration from current organization. Migration score between 0.005 till 0.28 or more indicates employee retention within current construction industry as shown in figure 1.

III. CONCLUSIONS

From the research analysis it is noticed that employees gave more priority to good salary package. It indicates that the salary offered by the construction organizations is not satisfactory. Least priority was given to provision of childcare and adult care facilities for an employee family. This indicates employee convergence towards salary and divergence towards other benefits provided by their respective organizations. Employees gave more priority to work related parameters like provision of flexible work structure at the organization, good work environment, etc. over personal parameters. Though one such personal parameter is insufficient salary package, yet on an average work related parameters were given priority over the other one. It is observed that married employees are more over those who are still singular. Feeding a family of size over and around four to six is very difficult for an employee being paid less. It is common that a married employee is strained more due to additional family responsibilities. So, their retention tendency automatically gets reduced without resolving their problems. It is observed that most of the employees responded are young with an experience not exceeding fifteen years. A strong positive correlation between age and experience is developed using the concept of correlation matrix. It is naturally true that both age and experience move tandem with each other but experience never halts retention. This concept is very well explained in the other positive correlation developed between age and number of companies worked in so far. Since attrition is common in construction industry, this encourages multiple shuffles of an employee from place to other. Finally using discriminant analysis migration score is developed. This score clarifies retention plan of all the employees who have responded to stay within their respective organization. It is startling to note that the formula so developed for migration predicted that all the employees from whom questionnaire were collected are going to migrate. This is a severe problem and construction organizations must conceive to control migrate rate.

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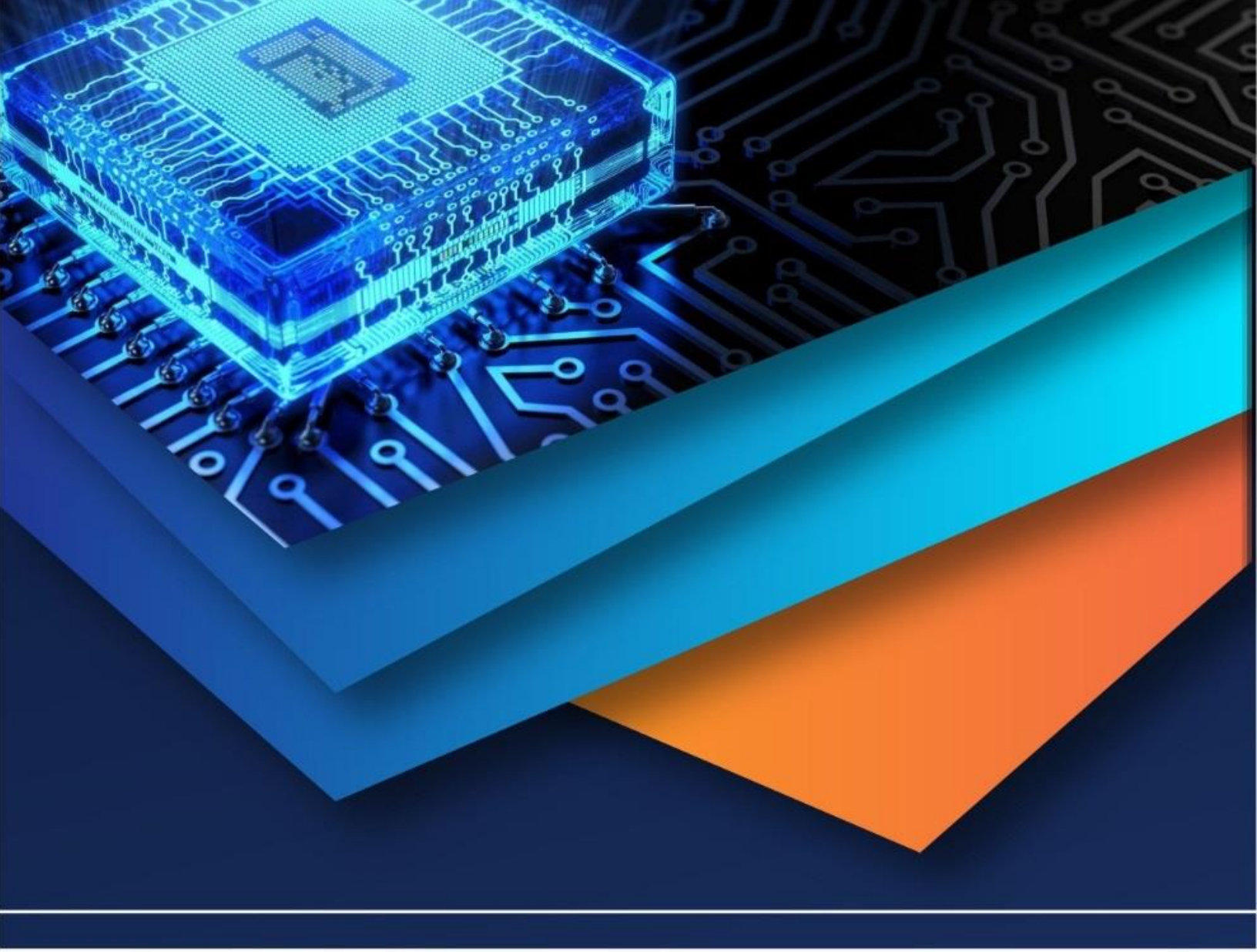

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