CHAPTER 7

FINDINGS AND CONCLUSION

7.1 INTRODUCTION

An extensive literature survey was carried out, from which nearly forty factors related to migration / retention are extracted, and used as a base for the questionnaire preparation. The questionnaire is used for identifying the major reasons for migration, and retention of engineers. The questionnaire was administered and the results were analyzed. Two models were proposed based on the respondents’ demographic details and their responses to the forty questions asked. Both models can be used to predict the intention of the engineers either working in a company or when they apply for the job. Based on the analysis, suitable suggestions are provided. The following are the findings and conclusions made in this study.

7.2 RESPONDENTS’ PROFILE

A majority of the respondents were either diploma holders or bachelor’s degree holders. Only less than 10% of the respondents had a master’s degree. Also women were very less in number, being only 12% among the respondents.

7.3 REASONS FOR MIGRATION

A list of nineteen factors were put across to the respondents to denote whether the reason cited was of very low, low, medium, high or very
high importance. A value of 5 was given, if it was a reason of very high importance, and a value of 1 was given if it was a reason of very low importance.

Hence, it could be interpreted that a value of 3 or above could be considered as a reason of high importance. The minimum mean value for any reason was 2.42, which is higher than 2. Hence, the conclusion was that none of the factor listed were considered of low importance. Seven factors out of these nineteen factors had a mean value higher than 3 which could be interpreted as, that these seven factors had a high importance level as a reason for migration. Since none of the reasons had a mean value above 4, (the maximum mean value was 3.46) it could be concluded that the reason for migration was not the same for all the respondents, and hence, there was no way of suggesting a universal solution to avoid this problem.

The topmost reason for anyone to migrate from one employment to other was “promotion is not based on performance and not offering performance bonus or incentives”, which had a mean of 3.45, followed closely by the reason “not satisfied with the salary package offered by company or moving to a better-paying job” with a mean of 3.44. By looking at these reasons, it is concluded that the topmost reason that would influence the retention of any employee is the pay pack and promotion offered. This shows that companies should offer the most competitive salaries to retain their employees.

The least mean of 2.41 was seen for the reason “No training programme in the company”. The next in line was the reason “Idle most of the time” with a mean of 2.45. The reason “No adequate safety measures” also had a very low mean of 2.49; it is thus concluded that though some of the personal policies on training, safety are important, they do not match with the importance given to salary and other perks in employment.
While the mean showed the average attitude of the sample towards any statement, the modal value would be a better indicator of the response of the maximum number of respondents to any statement.

Out of the nineteen factors, the largest response had been “moderate” (3) for 12 of them. Items like “No training program provided” and “Idle most of the time” had the largest proportion of respondents marking them as of ‘very low’ importance. Low importance was given to reasons like provision of health facilities and adequate safety measures. But reasons like inadequate salary, stress due to overwork, and dishonest and untrustworthy top leaders are some of the reasons, which had the maximum proportion of respondents denoting as reasons of ‘high’ importance.

Though the modal value of ‘high’ importance is for the reason ‘No honest and trustworthy leaders or loss of confidence with senior leaders’, this do not find a place among the top few reasons based on the mean, because there are varied types of opinions among the respondents with regard to this.

Thus, it is observed that ‘Not satisfied with the salary’ and ‘Stress due to overwork’ are very important reasons for employees to migrate from the present company.

### 7.4 RETENTION FACTORS

While the previous section lists the reasons for one to leave an organization and go to an alternate employment, the same issue was approached from a different angle in this section. The respondents were given a list of 21 reasons and were asked to say their level of agreement or disagreement with the statement. These statements tried to find out the best reason which will make them stay on in the present employment.
The following two reasons had mean values less than 3.

a. Fair and competitive salaries offered.

b. Employee/children day care facilities available.

These attributes can be considered moderate as far as their importance level is concerned.

Giving a low level of importance to “Fair and competitive salaries offered” looks quite contrary to the type of responses given as important reasons for migration from one company to the other. This can be interpreted as, though competitive salary is a driving force to migrate from the existing employment but it need not have the same importance in retention of a person or in other words, there are very many other important reasons other than salary which are to be ensured to retain a person in an organization.

The highest mean of 3.61 was scored by the reason ‘Positive work environment (relationships, values and cultural activities)’ followed by ‘Chance of communicating openly with superiors’ and “Varied assignments provided based on engineers talent” scoring 3.54 as their means.

All the reasons except the two mentioned above, scored a mean of above 3. It should also be pointed out that none of the means had crossed the value of 4 or was near 5. This can be interpreted to mean that there may be many reasons other than management practices, which can be the reasons for retaining any employee.

If the responses are considered from the point of view of the mode rather than the mean, it was observed that none of the statements had a mode value of 1. In other words, the importance level of none of the statements listed was found to be very low. Nevertheless, the reason “Varied assignments
provided based on engineers talent” had the maximum number of respondents marking as ‘very high’ in importance.

This may be interpreted to mean that the desire of the employees to have a very challenging work environment and to feel satisfied with their contribution, will make them decide to continue in the same employment. This response along with the low importance given to salary and payment may be interpreted to mean that the special nature of this industry, wherein a challenging work environment will offer a very high job satisfaction, which will ensure better retention of the employees.

7.5 DEMOGRAPHIC DETAILS THAT AFFECT MIGRATION / RETENTION

Education does not have any impact on the migration or retention decision of the respondents.

Though merely statistical, there is a significant difference in the mean of the retention points between males and females, with females having a higher score for retention; the value difference of 0.2 (3.56 – 3.33) is not very high. Hence, though one can be confident that women may stick on to the same job more than men, it does not lend itself to be interpreted as a huge difference between the males and females, as far as retention is concerned.

The place of stay and the fact whether the employee stays with the family or not, has a statistically significant difference with regard to both migration and retention.

The migration points are the highest for those who stay at the site with the family. The study could not find out the reasons for their preference to move away from the place. This lends itself to the recommendation of
further studies to find out the problems faced by these respondents. May be good medical and educational assistance at the site will ensure that these employees do not prefer to move out of the current employment.

On the same note it can be noticed, that the retention point is also lower among married respondents, whether staying at the site (mean - 3.40) or away from the site (mean - 3.24), than those who stay alone.

It can also be seen that on an overall level, the retention point averages are higher than the migration point average, for all the groups. Nevertheless, the proportion opting for migration is lesser among the married respondents than among those who are single. Thus, it could be deduced that more than the place of dwelling (whether at the site or away from the site), the marital status of the respondent plays an important role in the migrating or staying back decision of the respondent.

There is a statistically significant difference between respondents belonging to different categories as far as migration points are concerned. No such statistically significant difference was noticed in the retention points. Even in the case of the migration points, the difference is not prominent among all the different designations. The site managers have a lower mean value in comparison to other designations, like drawing and design engineers, planning engineers and site supervisors. This can be interpreted to mean that the site managers stay back in the employment longer than those with other designations.

The reasons for this may be many. Since it is the highest of the designations taken up in the current study, the authority that comes with it, the higher salary associated with this designation, the longer number of years of experience in this field, and may be even the un-employability of these respondents because of their longer experience in this field alone, which while
helping them to climb the ladder in this field, nevertheless reduced the number of openings that they can aspire for, are the reason for retention.

Next comes the study of the impact of the marital status on the migration and retention points of the respondents. There is a statistically significant difference in the mean of both the migration and retention points between the married and unmarried respondents. The married respondents have higher retention points than the unmarried ones. Also, the married respondents have lower migration points than the unmarried respondents.

The respondents were asked whether they would leave the organization in the near future. The relationship of this response to the migration and retention points was studied, and a statistically significant difference was seen between these groups in the case of both the points. This can be taken as an indication of the reliability of the questions for the parameters. The Cronbach alpha value of 0.829 for the 19 items of migration and 0.85 for the 21 items of retention, also prove the same point.

So far the discussion had been on the two major parameters, namely, migration or retention. The same approach and tests were carried out after splitting the 40 questions posed to the respondents into 6 major groups, namely, (a) personal (b) work environment (c) leadership and superiors (d) job satisfaction (e) growth prospects and (f) awards, recognition and facilities management. The table given below gives the outcome of those tests. In the table, a symbol “\( \sqrt{ } \)“ is inserted whenever a statistically significant difference is noticed in the mean.

Table 7.1 shows that the educational level and gender do not have much impact with regard to the attitude towards migration and retention.
Table 7.1 Attitude towards migration and retention

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Dependent variables</th>
<th>Education</th>
<th>Gender</th>
<th>Stay</th>
<th>Designation</th>
<th>Marital</th>
<th>Migrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Migration Points</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Retention Points</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Personal</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Work Environment</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Leadership and Superiors</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6</td>
<td>Job Satisfaction</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7</td>
<td>Growth Prospects</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>8</td>
<td>Awards, recognition and facility management</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

7.6 PAIRED SAMPLE t-TEST INTERPRETATION

The paired sample t-test is a way of comparing the two factors, migration factor and retention factor with a single group. Here, the difference between these two factors is calculated, and verified as to whether it is different from 0. If the difference is nearer zero, it can be concluded that the group does not have a wide variation in its attitude towards migration and retention.

Whether it is for the full data set or for the group, and whatever be the criteria for grouping, it can be noticed that the average of the retention points is always higher than the average of the migration points. This can be
interpreted to mean that the general attitude among the respondents is to stick on to the existing jobs instead of looking out for a change.

It can be noticed that the difference between these two points for any group is lesser than 1. The maximum difference of 0.89 was seen among the married respondents followed by a difference of 0.72 among the female respondents. It can be interpreted that though there is a statistically significant difference in the mean of the retention points and migration points, the difference in perception is not large enough for one to take note of it.

Thus, the data shows that the attitude towards migration or staying back is particularly very similar for those of the respondents, who have done their masters’ degree, those of the respondents who are unmarried, and among site supervisors.

All the groups have negative correlations, which can easily be comprehended by simple common sense. The attitude towards migration and that towards retention move in opposite directions.

7.7 CORRELATION STUDY

The retention and migration points are correlated to variables like age, years of experience in the construction industry, monthly earnings, size of the family, and the distance of travel to work - both in terms of the distance traveled as well as the time taken. Out of these items, only age, years of experience in the construction industry and monthly earnings have a statistically significant correlation to both the retention and migration points.
Before interpreting these variables in relation to the retention and migration points, it should be noted that the following three are significantly positively correlated amongst themselves. Thus both age and years of experience are positively correlated (0.89). So is the case between age and monthly salary (0.59) and years, or experience and monthly earnings (0.55).

All the three variables are positively correlated to retention and negatively correlated to migration.

As in the case of the paired t-test interpretation, in the correlation studies also, a lot of insight can be gained from those of the items that are not statistically significantly correlated, than those which are statistically significantly correlated.

Thus it can be seen, that the distance of the work place (either by way of the distance traveled or by way of the time taken to reach the place) or the size of the family of the respondent does not have a statistically significant correlation with either the migration or the retention points.

7.8 RESPONSES ON MIGRATION

Considering the fact that the response to the question, whether the respondent would continue in the current employment, had a statistically significant difference in the mean with regard to all the variables, Chi-square tests were done to find out the association between this response and other categorical variables in the data set. The findings are shown in Table 7.2.
Table 7.2 Significant association with migration

<table>
<thead>
<tr>
<th>Variables</th>
<th>Significant Association with the question ‘Migrate’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>No</td>
</tr>
<tr>
<td>Gender</td>
<td>No</td>
</tr>
<tr>
<td>Place of stay</td>
<td>Yes (People staying with family opt for migration)</td>
</tr>
<tr>
<td>Designation</td>
<td>Yes</td>
</tr>
<tr>
<td>Marital status</td>
<td>Yes (Unmarried people opt to migrate)</td>
</tr>
</tbody>
</table>

The marital status and place of stay give a clear signal as to who opted to leave the organization. Whoever stayed with the family felt that they had to leave the organization, while the sentiment was not this way among those who stayed alone, either at the site or away from the site. As had been explained earlier, the construction industry had not come out with good programs to take care of the families of the employees as seen in the IT or other sectors.

The reason that more unmarried respondents opt to migrate can be explained by the fact that, these respondents can take the risk and migrate to different jobs either for better salary, or for better exposure and experience, since they do not have the responsibility to take care of a family.

An additional question to find out whether the spouse was also working should be included in future studies, to know, whether it is only the monetary responsibilities which limit one from jumping jobs or not.

7.9 DISCRIMINATION OF INFLUENCING FACTORS

A discriminant analysis was done, to find which of the different factors discussed above are important in discriminating between those who would leave the job and those who would not prefer to do so.
Though all the demographic factors like gender, education, marital status, place of stay, age, experience in the construction industry, monthly earnings, family size and others were included in the model, along with the six basic factors like (a) personal (b) work environment (c) leadership and superiors (d) job satisfaction (e) growth prospects and (f) awards, recognition and facilities management, the findings show that the six basic factors listed above explain most of the discrimination between the two groups. Since these six variables had a significant relationship with some of the demographic details like place of stay, marital status, and gender, these demographic variables did not find a place in the stepwise discriminate function that was generated. Only the ‘size of the family’, was part of the final discriminant function apart from the six variables generated, based on the 53 questions asked.

Table 7.3 shows the standardized Canonical Discriminant Function Coefficients.

**Table 7.3 Standardized canonical discriminant function coefficients**

<table>
<thead>
<tr>
<th>Factors for retention</th>
<th>Function Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of Family</td>
<td>-0.23</td>
</tr>
<tr>
<td>Personal</td>
<td>0.24</td>
</tr>
<tr>
<td>Work Environment</td>
<td>0.30</td>
</tr>
<tr>
<td>Leadership and Superiors</td>
<td>0.29</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>0.31</td>
</tr>
<tr>
<td>Growth Prospects</td>
<td>0.20</td>
</tr>
<tr>
<td>Awards, recognition and facilities management</td>
<td>0.16</td>
</tr>
</tbody>
</table>

If the coefficients given in the Table 7.3 could be used to generate a discriminant score for each of the respondents’, and if the final value is nearer to -0.73, it could be concluded that the person would not opt to migrate. If the
discriminant score is nearer to 1.97, it could be concluded that there is a higher probability of the person leaving the company.

The above procedure could be used to assess whether the existing employees would continue to stay in the same organization.

The outcome of the discriminant analysis reveals, that parameters like personal factors, work environment, leadership and superiors, job satisfaction, growth prospectus and awards, recognition and facilities management discriminate very well between those who will stay in the same organization and those who will migrate to another organization. This is the information collected from an employee who is presently working in that organization. This data may be useful to gauge the proportion of the existing workforce who may leave the organization. But this may be a difficult prediction for people who are joining the new office. For such situations, the migration / retention attitude based only on demographic details, may be more useful.

The chance of a new recruit to continue in the company can be assessed by studying the association of the question on migration to some of the demographic variables. These analyses are discussed in the chapter 5. Based on those findings, it may be concluded that there would be a greater chance of one leaving the company if

a. the person is unmarried
b. the person stayed with the family
c. the monthly earnings are low and
d. the respondent is not old
e. the respondent has less number of years of experience in the construction industry and
f. the family size is small.
7.10 ESTIMATION OF PROBABILITY OF MIGRATION / RETENTION

Each and every variable which had a relationship with the migration decision of the respondent was analysed, using a multinomial regression analysis. This test brought out clearly the relative importance of the different variables and the different groups within the variables. The most important variables which affected the migration decision of the respondents are listed below.

a. Family Size - As the family size increases, there is lesser inclination for the engineers to leave the organization. For every unit increase in the family size, there is 1.47 times higher probability of the respondent deciding to continue in the same organization.

b. Age – The higher the age, the higher the probability for the person to continue in the same job. For every additional year to the age, there is 1.27 times higher probability of the respondent deciding to continue in the same organization.

c. Marital status – the probability for the married people preferring to stick to the organization is 3.82 times higher compared to that of married people preferring to leave the organization.

7.11 CONCLUSION

In this study, the respondents have been classified into four categories of engineers design and drawing engineers, planning engineers, site engineers, and site managers. The study was conducted in constructions sectors in the metropolitan city Chennai in the state of Tamilnadu, India. The
study is limited to the civil engineers working in the metropolitan city Chennai in the state of Tamilnadu. Hence similar studies should be conducted in other region. The study is limited to exploring the factors that affect engineers’ migration/retention within the context of India and organizational culture in the Indian construction sector. Forty factors were identified and presented to the construction professionals in the form of a questionnaire. However the psychological analysis of the respondents was not considered because the study would become more complex. Any have check for validation of data collected was made.

This study on “Factors influencing migration of engineers in construction industry” in the metropolitan city Chennai in the state of Tamilnadu Indian context has helped to collect the relevant data, and to get the personal opinions of various personnel on this important issue of engineers’ migration, investigated through a questionnaire survey. Several analyses have been done with the data collected, and the results are discussed, to have the potential knowledge on retaining the engineers, so as to avoid migration in the organization, especially in the Indian scenario. The following are the conclusions drawn:

- The study clearly brings out that gender or educational levels do not play a significant role in the migration decision of the respondent. Though there are only 12.1% females in the sample taken up for study, the findings do not seem to bring out any discrimination because of gender.

- The topmost reason for anyone to migrate from one employment to another was the “promotion is not based on the performance, and not offering performance bonus or incentives, and not satisfied with the salary package offered by company or moving to a better-paying job”.
The topmost reasons for promoting retention of engineers were “positive work environment (relationships, values and cultural activities), chance of communicating openly with superiors and varied assignments provided based on engineers talent”.

It is the marital status of the respondent and size of the family which influence the decision to stay back or leave the company.

The migration of engineers based on the demographic details such as place of stay has more effect. Those who stay at the site with the family have the highest mean value.

From the discriminat analysis it was found that there would be a greater chance of one leaving the company if the person is unmarried, the person stayed with the family, the monthly earnings are low and the respondent is not old.

From the multinomial regression analysis it was found that the age, size of family, place of stay and marital status play the main role when recruiting new engineers for an organization.

7.12 SUGGESTIONS

In today’s environment, human resources are as important as financial assets, technologies etc, and hence, organizations have to consider the human resources, because they are vital for the success of an organization. Based on the study, some suggestions are provided here to improve the engineers’ retention in an organization.

Reward and Recognition: To motivate and retain the best of talent in the industry, the management may consider rewarding
the individuals and team who go an extra mile to contribute to the organization.

- Growth Opportunity: Management may consider offering challenging and skillful jobs to individuals so that they are prepared for top positions. Whenever employees are given such opportunity, they would have the sense of belonging and affinity towards organization increase.

- Valuable Contribution: Recognizing valuable contribution of individuals and teams and also making them feel that their work is very much important for the organization will bring in the sense of pride among employees.

- Fun-filled work environment: Employees productivity and morale tend to increase with a stress-free work environment. They would love a cheerful and fun-filled work environment. Providing a congenial environment makes an employee loyal to the organization.

- Listen: Periodical meetings with employees to understand their problems, grievances and complaints and providing fair and impartial solution will ensure cordial relationship between the management and the employees there by assures employee retention.

- Employee friendly policies: Working hours and schemes, granting compassionate and urgency leave, providing healthcare for self, family and dependants, etc., are important for most of the people. Work-life balance policies would have a positive impact on retaining skilled employees, as well as on attracting high-caliber recruits.
- Valuable asset: Human resource is to be considered as the most valuable asset of the organization. It is costlier to hire and train new employees than to retain the existing talent.

To improve engineers’ retention all these factors should be given equal importance. All these factors are considered, and the following suggestions are provided for recruiting the correct type of employees, and gauge the engineers who may prefer to leave the organisation.

7.12.1 Recruit the Correct Type of Employees

If the organization wants to recruit only those of the people who will stick on with them for a longer period, the initial choice should be based on some basic information like the age of the respondent, his/her family size, marital status, and whether the person proposes to stay with the family or not.

It is observed that the desire to migrate was higher among people who live with their families, whether at the site or away from the site. It could be concluded that the HR practices in the construction industry had not adopted such of the practices to include family welfare also as a criterion. Considering the fact that the new entrants into the tertiary sector (namely, the IT industry) had brought about a sea change in the HR policies that had to be adopted to achieve the retention of employees, the demand for such welfare measures has percolated to the other sectors / industries also.

The construction industry as a whole should gear up for better HR policies, which should be substantially better than what are practiced in the industry at present.
7.11.2 **Gauge the Proportion of People who may Prefer to Leave the Organization**

If the organization wants to reduce the attrition rate within the company, then it has to ensure that the employees are provided with a proper work environment, job satisfaction, superiors and leadership, growth prospects and personnel policies.

A good HR policy which addresses the concern of all these parameters will help the organization to retain its workforce.

### 7.13 SUGGESTIONS FOR FUTURE STUDY

The last but not the least, a series of in-depth cases on both migration and retention in different construction firms can be taken up in future, to ascertain the applicability of the critical success factors identified in this overall study. The best retention practices for the Indian construction industry can then be generated accordingly, and used as a benchmark for standardizing practices. Case studies can be made on different sectors.

Further studies on the standardized canonical discriminant function coefficients may be adopted by each and every project manager on the various factors of migration and retention, and the data may be collected to identify its great usefulness or to find an alternative methodology.

System software technology can be developed to stimulate and study the impact of various parameters on migration and retention. There is also scope for developing retention prediction models, using neural networks applicable to the Indian scenario.