CHAPTER V
FINDINGS AND DISCUSSIONS

5.0 Introduction

This chapter presents the findings based on the analysis and interpretation of collected data carried out with appropriate statistical tools and techniques applied wherever necessary and discussions. It also includes the opinions of experts from among educationists, personnel from the industries and employees reviewing the situation. Compared to the frequency of foreign publications, studies from India either at the national level or at state or university level are very much less in number though the problem is persistent for some years in India too. The present study stands to be one among the very few studies from India and first of its kind in the new millennium from Kerala.

The sample population comprises of three sets/categories. The first set is from among the engineering graduate students, the second set from among the graduate students provisionally selected for jobs awaiting the completion of the course while the third set is from among the engineers already employed. The analysis has been done for each of the three groups separately to find out the competence of the respondents and the findings here provide discussions on the findings.

5.1 Major Findings

The findings are structured into different parts as follows:

Findings are reported hereunder in four parts. Samples belong to students’ category identified in the eight institutions and working group of engineers. Students come under two categories. Findings for the Students Category – (1) and Students provisionally selected in the campus interview – (2)
are provided under Part A and Part B respectively. Part C provides the findings on the working group. Part D provides the findings on the Comparative Study of the above three sets of respondents. Part E provides a summary of the outcome of the schedule interviews with educationists, experts besides a selective group of the employed.

**Part – A Students Category**

**a. Numerical Ability and Verbal Reasoning of the Respondents**

With regard to Numerical Ability, it is found that male respondents have more mean score than that of the female respondents. However, the gender-wise difference is not statistically significant with regard to their Numerical Ability. The respondents from the ECE branch got more mean value than others. The inference is that respondents from different branches of study do differ with regard to Numerical Ability and Verbal Reasoning. It is observed that regarding Numerical Ability and Verbal Reasoning, respondents belonging to the 5th semester secured a slightly higher mean value than those of other semester groups and the statistical inference is that the respondents belonging to different semesters do not differ with regard to their Numerical Ability and Verbal Reasoning.

**b. Space Relations of the Respondents**

It is concluded that male and female respondents do differ with regard to their Space Relations; the numerical score of males is found to be higher than the females. It is observed that among respondents from different branches of study, respondents from the ECE branch have got the highest mean value with 38.83 regarding Space Relations. But this observed difference is statistically Not significant. Semester-wise cluster analysis reveals that, respondents belonging to the 8th semester secured the highest mean value with 42.42 per cent. It is
concluded that respondents belonging to different semesters do differ with regard to their Space Relations.

c. Speed and Accuracy of the Respondents

With regard to Speed and Accuracy of the respondents, it is found that male and female respondents do not differ statistically even though male respondents have more mean score. Further it is observed that the respondents belonging to CSE have the high mean value as 61.24 per cent in their Speed and Accuracy. It is inferred that respondents belonging to various branches do not differ with regard to Speed and Accuracy. Respondents belonging to 5th semester secured a higher mean value of 74.91 per cent. Further, it is concluded that respondents belonging to different semesters do differ with regard to their Speed and Accuracy.

d. Personal Efficacy of the Respondents

It is observed that respondents from the IT branch have more mean value with 76.66 per cent. It may be concluded that respondents from different branches of study do differ with regard to Personal Efficacy. Respondents belonging to 7th semester secured 75.13 per cent. It is concluded that respondents belonging to different semesters do differ with regard to their Personal Efficacy and further it is found that male and female respondents do not differ in this regard.

e. Interpersonal Efficacy of the Respondents

Respondents from the IT branch have more mean score (75.18 %). It is inferred that respondents from different branches of study do differ with regard to interpersonal efficacy. Regarding Interpersonal Efficacy, respondents belonging 6th semester secured 71.39 per cent. It is concluded that respondents belonging
to different semesters do differ with regard to their Interpersonal Efficacy. Further it is concluded that male respondents have more mean score (70.26) when compared to that of the female respondents (69.71). It may be concluded that male and female respondents do not differ with regard to Interpersonal Efficacy.

f. Intrapersonal Efficacy of the Respondents

Respondents from IT branch are found to be with a high mean score. It may be inferred that respondents from different subject groups do differ with regard to their Interpersonal Efficacy. Respondents belonging 6th semester have more mean score. It is concluded that respondents belonging to different semesters do not differ statistically with regard to their Intrapersonal Relations. Female respondents have more mean score (62.79) when compared to that of the male respondents (61.45). It may be concluded that male and female respondents do not differ with regard to Intrapersonal Efficacy.

g. Overall Emotional Efficacy of the Respondents

Respondents from the IT branch have a high mean score exceeding 70 per cent. It may be inferred that respondents from different subject groups do differ with regard to Overall Emotional Efficacy. Respondents belonging to 6th semester secured 70.92 per cent. It is concluded that respondents belonging to different semesters do differ with regard to their Overall Emotional Efficacy. Female respondents have more mean score (70.76) when compared to that of the male respondents (69.35). It may be concluded that male and female respondents do not differ with regard to Emotional Intelligence.

h. Least Preferred Co-worker (LPC) Score Based Analysis

Of the total respondents, 51.2 per cent is found to be task and relationship oriented, and 24.7 per cent task oriented while 24.2 per cent is relationship
oriented. Task and relationship blend is taken to be ideal for working environments. From the ANOVA results it is concluded that there exists a significant difference among the respondents who are task oriented, task and relationship oriented and relationship oriented.

**Part – B Students Provisionally Selected in the Campus Interview**

**a. Findings for the subgroup selected in the Campus Interview**

It is found that 49.4 per cent of the respondents is found to be low achievers, followed by 30.9 per cent forming the high achievers group while the rest are moderate achievers. It is observed that high achievers get a higher mean value in Numerical Ability, Verbal Reasoning, Space Relations, Speed and Accuracy etc. Further it is found from the ANOVA results that there is a significant difference among the respondents with different levels of achievement.

Further it is observed that respondents belonging to three categories of least preferred co worker do differ with regard to their level of achievement. With regard to gender wise analysis it is concluded that male and female respondents do not differ significantly with regard to Numerical Ability, Verbal Reasoning, Space Relations, Speed and Accuracy, Personal Efficacy, Interpersonal Efficacy, Intrapersonal Efficacy and Overall Emotional Efficacy (OEE).

**b. Correlation matrix for the subject variables**

Numerical Ability is positively associated with Verbal Reasoning \( (r = 0.44) \), Numerical Ability + Verbal Reasoning \( (r = 0.89) \), Space Relation \( (r = 0.27) \) and Speed and Accuracy \( (r = 0.158) \). Further, Numerical Ability is positively associated with Overall Emotional Efficacy. The above observations clearly indicate that as Numerical Ability increases OEE also increases.
Part – C  Findings on the working group

a. Numerical Ability

It may be concluded that respondents from different gender categories, age groups, different designations, and different salary groups do not differ with regard to their numerical ability. Further, it is found that respondents with different achievement levels and different categories based on their LPC do differ significantly.

b. Verbal Reasoning Based on Different Subject Variables

It may be concluded that respondents from different gender categories, age groups, or different designations or different salary groups do not differ with regard to their Verbal Reasoning. Further, it is found that respondents with different achievement levels and different categories based on their LPC do differ significantly.

c. Space Relation Based on Various Subject Variables

It may be concluded that respondents from different gender categories, age groups, designations, level of achievement, and salary do not differ regarding Space Relations. Further, it is found that respondents with different achievement levels and different categories based on their LPC do differ significantly.

d. Speed and Accuracy

Respondents belonging to different gender categories and different salary levels do not differ significantly and respondents from different age groups, designations, different levels of achievement and different LPC do differ with regard to their Speed and Accuracy.
e. Personal Efficacy Based on Different Subject Variables

It is found that gender, age, designation, salary differences do not have any impact on the respondents’ Personal Efficacy. Further, it is found that respondents with different achievement and different categories based on their LPC do differ significantly.

f. Interpersonal Efficacy, Intrapersonal Efficacy and Overall Emotional Efficacy

With regard to Interpersonal Efficacy, Intrapersonal Efficacy and Overall Emotional Efficacy, it is found that gender, age, designation, salary differences do not have any impact on Interpersonal Efficacy, Intrapersonal Efficacy and Overall Emotional Efficacy. Further it is found that respondents with different achievement levels and different categories based on their LPC do differ significantly.

Part -- D Comparative Study of Three Different Sets of Respondents

It is found that the respondents of the selected group for placement do differ with a higher mean score than the I and III categories of respondents (students and employed) in their competences and this observed difference is found to be statistically significant while they do not differ in their Interpersonal Efficacy and Verbal Reasoning from the other two groups.

Part -- E Outcomes of Interviews with Educationists, Experts and the Employed

The skills gap otherwise termed as mismatch of the entry level engineers with Industry needs should be viewed with sympathy and concern by all the three sectors namely the institutions, industry and the government.
The issue needs appropriate collaborative measures with coordination and nothing can bring a magical effect overnight. Above all, it is important to enhance the level of motivation which should start with a finishing school program attached with the schedule of the higher secondary school. The private sector cannot be permitted to dominate into the portals of the academic institutions and if inevitable, limited dose should be exercised. Curriculum development, talented teachers and attractive pay to them along with programs to enhance/update their knowledge and skills in efficient teaching, meaningful, result oriented industry visits, invited lectures from the industry experts/personnel, their involvement in academic programs and teaching in partial to some extent are some of the suggestions. The academic institutions form the underlying thread bringing the IT industry and the Government into an effective collaboration.

5.2 Formulated Hypotheses and Results

H1. Engineering graduates belonging to different categories do not differ in their competence and emotional intelligence. The results revealed that there is a significant difference and hence the hypothesis stands rejected.

H-2. Engineering graduates from different branches of study do not differ with regard to their competence and emotional intelligence. It is found that respondents do differ and hence the hypothesis is rejected.

H-3. Male and female engineering graduates do not differ with regard to their competence and emotional intelligence. Hypothesis proved positive since male and female graduates do not differ.

H-4. Engineering graduates from different semesters do not differ with regard to their competence and emotional intelligence; Hypothesis is rejected since respondents from different semesters differ.
H-5. Engineering graduates do not differ with regard to their competence and emotional intelligence in the context of Least Preferred Co-worker. Hypothesis is rejected since the respondents differ in their competence and emotional intelligence in the context of LPC.

H-6. Engineering graduates who have secured placement orders do not differ in their competence and emotional intelligence with regard to their achievement level. Hypothesis is rejected since the respondents differ in their competence and emotional intelligence in the context of achievement level.

H-7. Engineering graduates who are already employed do not differ in their competence and emotional intelligence with regard to their achievement level. Hypothesis is rejected since the respondents differ in their competence and emotional intelligence in the context of achievement level.

H-8. Engineering graduates who are already employed with different salary do not differ with regard to their competence and emotional intelligence. Hypothesis is accepted since the respondents with different salary do not differ in their competence and emotional intelligence.

H-9. Engineering graduates who are already employed do not differ with regard to their competence and emotional intelligence in the context of Least Preferred Co-worker. Hypothesis is rejected since the respondents differ in their competence and emotional intelligence in the context of LPC.

The performance of the sample covered under the study from a wide range of courses of study, semesters and different institutions, besides employed category is found to be in a range from low level to high level. Overall, uniform better performance could not be noticed with a majority as the samples who are better in selective skills lack in others in their skills set. Samples who performed better in their overall performance form a small section of the respondents.
5.3 Discussions

It is noticed that a profound change is occurring, not only just in the type of skills being requested by employers, but also in the level of importance employers have been placing on certain skills and competencies for entry level positions. In fact, talent management is fast becoming a major concern for the fundamental reason that available talent pools often do not match the global ambitions of IT industry. Globalization, the relentless quest for productivity growth, and IT industry’s increasing service orientation are driving demand for higher skills. Amidst globalization and competitiveness that create ramifications of economic pressures and shifts, it is surprising that there has not been a much louder alarm in India raised about the skills gap among the Engineering graduates at the entry level. The absence of guidelines challenges the stakeholders to look ahead, to anticipate emerging skills or a change in the emphasis on certain skills that could impact the preparedness of engineers and technology graduates for employability in the knowledge-intensive workplace. Unfortunately, little effort has been expended on looking ahead for bridging the gap. Even with guidelines, norms and standards, it should be hard enough bringing students up to current levels of skill preparedness, expected by employers. It needs a long run view and farsightedness with frequent surveys based on standardized tests with support from the Government.

5.3.1 Bridging the Skills Gap : Possible Measures

The problem of Skills gap is said to be universal though the skills set changes in its significance according to the nature of business, companies, work culture and any other parameter that may influence a change in the trend. But, the solution to bridge the gap lies with the academia, industry and the government in their initiatives, measures and more significantly the implementation phase. The solutions found common among the outcome of various studies concerned with skills gap are summed up as follows:
5.3.1.1 Developing Generic Skills Profile and Job Classification System

Generic Skills Profile and Job Classification System should be developed in order
- To create greater industry awareness of global ICT requirements for key jobs and skill areas for which the ICT industry is experiencing skills shortages
- To enable the systems concerned, to guide education budget allocations, curriculum changes, and support for training.
- To create systems to describe jobs, technology areas and tasks, required level of behavioral and technical skills

5.3.1.2 Developing Curriculum Development Guidelines

Universities and ICT Industry should work together to design and develop programs and courses to match the skills profile and industry needs.

5.3.1.3 Developing Methodology for Quantification of Human Resource Requirement

Methodologies should be developed for better quantification of the human resources required by the industry/industries and to guide policies for adapting public and private investments and programs to evolving market changes.

In sum, only through a sustained, coordinated efforts and strategies, involving leaders from the Central and State Governments, Educational institutions, and the ICT industry, India can develop the human resources
required, bridging the skills gap, improve the ICT industry and support the transformation of the nation into a knowledge economy.

5.4 CONCLUSION

In the recruitment process, when the vacancies are small in number, the written test at the initial step is compensated by a personal interview with questions on the skills expected and then only on the core subject. Written test in the process for mass recruitment also is concerned first with employable skills rather than core [engineering] subject. Only on a successful clearance of this first phase, the candidates move on to face the subject expert panel. Lack of skills of the candidate may lead to a summary rejection of the candidature and this signifies the importance of industry needs fixing the emphasis on generic skills at the first and foremost place rather than the technical skills/subject merit and knowledge.

In case of mass recruitments, selection is mostly based on written tests on the models adopted in this investigation. For cases, where a large number of applicants undergo testing, it may be considered necessary to set cut off scores either for accepting or rejecting applicants. During the interviews, the experts from the corporate sector admitted that, by applying cutoffs, the applicant pool can be reduced to a more manageable size and, in turn, the costs involved in selection test can be limited. Either minimum cut off or top down cut off is adopted depending upon the number of vacancies.

The minimum cutoff method enables organizations to hire a greater number of minority group members than a top-down approach as this strategy involves ranking applicants on the basis of test scores. Those with the highest scores are selected first. This ensures the highest work productivity, but this is said to have an adverse effect on women and minority groups. If the minimum cutoff only is opted, more number of respondents covered in this study stand to
gain. Consultations with industry reinforced the fact that the skills defined in the Competence Framework prescribed by many countries are still seen as highly relevant to their needs. Broadly speaking, industry representatives are satisfied with the technical or discipline-specific skills of graduates, but for some there is a perception that competences are underdeveloped.

Some employers believe that universities are providing students with a strong knowledge base in the subjects concerned without the ability to intelligently apply that knowledge in the work setting. This is backed up by international research as reviewed in the review of literature chapter.

Employers interviewed for the purpose of supplementing this study expressed a willingness to more deeply engage with universities, particularly in the provision of work-related experiences for undergraduates. Those interviewed in universities and colleges also saw it as an imperative to have more tie-up and build strong links with industry and employers. They all revealed a great support for this industry-academia collaborative partnership efforts for building an effective employable workforce.

It should be recognised that whilst universities see it as part of their role to develop professionals who have the required discipline-specific knowledge and are work ready on graduation, it is acknowledged by universities and employers alike that competencies are acquired and developed through many additional institutional measures and individual experiences. The Government and the Industry should be drawn into closer ties with the Engineering academic institutions in all their initiatives to reduce the skills gap and increase the employability potential for the entry level engineering graduates.