

## A Study on the Influence of Domicile of Engineering Colleges and Competency Profile of Industrial Aspirants

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### ABSTRACT

The authors having an industrial / academic experience for more than 3 decades in various capacities and functions both in technical and as well managerial (HRM / HRD) is able to clearly gauge the required technical competency, practical and behavioural skills of the executing personnel to drive the organization in an expected profitable zone amidst the prevailing competitive business scenario. The authors find huge gap between the expected and existing competency among the industrial aspirants. Also the authors believe that the location of Engineering Colleges have much impact on the development of competencies among industrial aspirants and hence this study. The authors have undertaken the present Descriptive Research study among the Engineering

Graduates (Fresh BE., and B.Tech.,) selected for one year Graduate Apprenticeship at a Heavy Engineering and Manufacturing Public Sector. The sample size was 149 having the mixture of major discipline in Engineering and passed out from different colleges in Tamilnadu. Data were collected at the time of their joining by using census sampling procedure through a pre-designed interview schedule. Appropriate statistical tools have been used for analysis and the results.

**Keywords--** Technical Competency, Practical and Behavioral skills, Industrial Aspirants

## I. INTRODUCTION

Towards economic contribution of Industrial organizations to our Country, India is still much marginal and reasonable. Efforts of such organizations at all levels have generally been directed at maximizing the profits. To achieve the focused results, organizations need to acquire the talents of having required competencies which are emerging as forces of actors for the industrial aspirants with Bachelors in Engineering Degree. With buzzle, the industrial aspirants are looking for getting lucrative jobs with their academic profile but not being aware of the expectations, problems and constraints of Industries.

Latest Aspiring Minds National Employability Report reveals that only 20 per cent of the engineering graduates are employable. Perhaps there is a mismatch between the academic curriculum and the practical aspects of the industrial expectations. Several companies have set-up their own training institutes to fill up the gap between what the education system delivers and what is needed in the market place. Here the authors assume that the location of the Engineering Colleges plays major role in developing the required Behavioral and Technical competencies like attitude, knowledge and skills.

### 1.1 Rational of the Study

The authors believe that the development of competencies varies according to their domicile of Engineering Colleges viz. Rural, Urban and Major city and understand the Engineering Colleges influence technical competencies, practical and behavioral skills of Industrial Aspirants. The study will enlighten the gap between the expected competencies by the Industries. It will also help the Engineering Colleges to understand and strengthen the competencies of the Industrial Aspirants.

### 1.2 Objectives

- To understand the socio demographic profile of the respondents.
- To know the Competency profile of the respondents with regard to Domicile of Engineering Colleges.
- To analyze the significant relationship, differences among the selected variables with Competency profile of the respondents.
- To suggest suitable measures to re-build effective Competencies among the respondents.

## II. REVIEW OF RELATED LITERATURE

**2.1 Male.S.A (2010):** A review on Generic Engineering Competencies and Modeling Approach puts forward the view that engineering educators have a responsibility to prepare graduates for engineering work and careers. The current literature reveals gaps between the competencies required for engineering work and those developed in engineering education. Generic competencies feature in these competency gaps. Literature suggests that improving the development of generic competencies in engineering graduates has met with barriers. One identified problem is that a relatively low status is assigned to generic competencies in engineering education. This review focuses on competencies that are required by professional engineers across all engineering disciplines, in Australia, Europe, New Zealand, and USA. The literature suggests that engineering educators should focus on developing “generic engineering competencies” rather than separate generic competencies and engineering competencies. A method, developed at the University of Western Australia for identifying the generic engineering competencies required by engineers graduating in Australia, is outlined.

**2.2 Renee Polziehn (2011)** His study on Skills Expected from Graduate Students in Search of Employment in Academic and Non-Academic Settings and states that Making lists of soft skills and offering sessions to students may be the first step to getting graduate students to think about what they can offer future employers..

**2.3 Gwang-Jo Kim (2012)** in his edited book shares that preparing young people to enter the labour market has therefore become a critical responsibility for universities. However, the relevance of their programs and the employability of their graduates are posing an increasing challenge for the universities, particularly in view of two sets of statistics: enrolment and youth unemployment rates. According to UNESCO’s data, enrolment in tertiary education more than doubled over the past two decades from 68 million in 1991 to 151 million in 2008. At the same time, the financial crisis that began in 2008 has resulted in increasing unemployment, as highlighted in ILO’s Global Employment Trends reports. The global unemployment rate was 6.2 percent in 2010 compared to 5.6 percent in 2007. According to the 2012 report, young people continue to be the hardest hit by the job crisis with 74.8 million youth being unemployed in 2011, an increase of more than 4 million since 2007. With many economies being reported as not generating sufficient employment opportunities to absorb growth in the working-age population, a generation of young productive workers will face an uncertain future unless something is done to reverse this trend. To increase the graduates’ chances of obtaining decent jobs that match their education and training, universities need to equip their students with the necessary competencies to enter the labour market and to enhance their capacities to meet specific workplace demands.

### III. METHODOLOGY AND MATERIALS

The universe of the study is 149 respondents who are from different engineering colleges in Tamil Nadu, selected on merit among the applicants and offered one year Graduate Apprenticeship at a Heavy Engineering and Manufacturing Public Sector during Jan, Feb and March, 2017. To assess the competency levels of the respondents the authors have undertaken Descriptive Research study and have used census sampling procedure to collect the required data. A self-prepared interview schedule for data collection have been developed by the authors and validated by the experts. The SPSS (Statistical Package for Social Science) was used for processing and analyzing the data and arriving at conclusions.

### IV. ANALYSIS AND INTERPRETATION

The primary verbal data collected from the 149 Graduate Apprentices were converted as numerical for the convenience of computing appropriate statistical tests.

#### 4.1 Socio Demographic Findings

**4.1.1 Gender:** Out of 149 respondents, more than half, 65.1 percent are Male and 34.9 percent Female. It is also inferred that there is no significant difference between the Gender of the respondents (Male and Female) with regard to their Behavioral ( $Z = 0.304$ ) and Technical competency ( $Z = 2.271$ ) However if we look into the mean value, the Male respondents (128.85) are having higher scores than Female (127.85)

**4.1.2 Domicile of the Respondents:** Out of 149 respondents, more than half, 52.2 percent are from Rural and 47.7 percent are from Urban area. It is also inferred that there is no significant difference between the Domicile of the respondents (Rural and Urban) with regard to their Behavioral ( $Z = -0.255$ ) and Technical competency ( $Z = 1.641$ ) However if we look into the mean value, the respondents coming from Urban area (128.92) are having higher scores than Rural area (128.12)

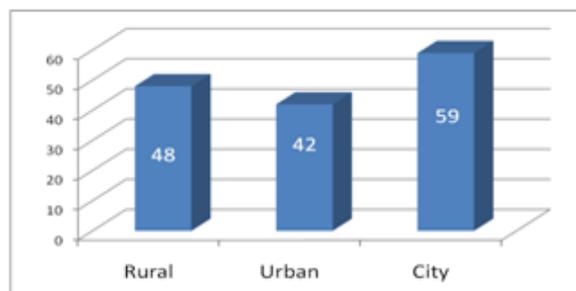
**4.1.3 Type of Family:** Out of 149 respondents, more than three fourth, 81.9 percent are living in Nucleus family and 18.1 percent are living in joint family. It is also inferred that there is no significant association between the Type of the family of the respondents (Nucleus and Joint) with regard to their Behavioral ( $X^2 = 0.685$ ) and Technical competency ( $X^2 = 0.499$ ) However if we look into the mean value, the respondents living in Joint family (51.85) are having higher scores than living in Nucleus family (47.54)

#### 4.2 Domicile of Engineering Colleges

Table: 4.2.1

Sl No	Domicile	Respondents	Percent
1	Rural	48	32.2
2	Urban	42	28.2
3	City	59	39.6
	Total	149	100.0

Graph: 4.2.2



From the above table 4.2.1 it is observed that out of 149 respondents, more than one third, 59 respondents (39.6 %) passed out from Engineering Colleges located at City, more than one third, 48 respondents (32.2 %) passed out from Engineering Colleges located at Rural and less than one third, 42

respondents (28.2 %) passed out from Engineering Colleges located at Urban

**One way analysis between the Domicile of Engineering Colleges with regard to their various Competencies of respondents**

Table: 4.2.3

Domicile of Engg College	Behavioral		Total
	Low	High	
Rural	25	23	48
Urban	24	18	42
City	28	31	59
Total	77	72	149

Table: 4.2.4

Domicile of Engg college	Technical		Total
	Low	High	
Rural	26	22	48
Urban	22	20	42
City	27	32	59
Total	75	74	149

Table 4.2.5

Domicile of Engineering Colleges		Sum of Squares	df	Mean Square	F	Significance. at 0.05=2.21
Behavioural Competency	Between Groups	0.231	2.0	0.116	0.634	Cv, P=0.634 P < 2.21 Not Significant
	Within Groups	36.977	146	0.253		
	Total	37.208	148			
Technical Competency	Between Groups	0.594	2.0	0.297	0.309	Cv, P =0.309 P < 2.21 Not Significant
	Within Groups	36.641	146	0.251		
	Total	37.235	148			

• **Interference:** From the above table 4.2.5 it is inferred that there is no significant variance among the Domicile of Engineering Colleges and the competencies (Behavioral and Technical) since  $P > 0.05$ .

• **However** if we look into the low / high value, the respondents passed out from Engineering colleges located in City ( Behavioral 52.54% & Technical 54.23 %) are having high competencies than other Engineering colleges – Rural (Behavioral 47.91% & Technical 45.83 %), – Urban (Behavioral 42.85% & Technical 47.61 %),

## V. RECOMMENDATION

- **Special Module** on development of competencies can be included in the curriculum
- **Soft Skill** can be taken as one of the mode to develop Behavioral competency
- **Technical Sessions** require more duration and demo of certain mechanisms can be done, for easy understanding

- **MoU** – Engineering Colleges may enter into a Memorandum of Understanding with nearby Industry to strengthen the hands on Technical competencies
- **Industrial** Experts may be called for special lectures

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