

STATUS OF ENGINEERING COLLEGES INFLUENCES ON THE COMPETENCY PROFILE OF ENGINEERING GRADUATES

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ABSTRACT

Having an industrial and academic experience for more than 3 decades in various functions both in technical as well managerial (Human Resource Management and Human Resource Development), the author was able to clearly gauge the required Behavioral and Technical competencies of the executing engineers to take up the organization towards an expected profitable zone amidst the tough competitive business scenario. The author found a huge gap between the expected and existing competencies among the Engineering Graduates. Also, the authors believe that the status of Engineering Colleges has much influence on the development of competencies among engineering graduates and hence this study. The authors have undertaken 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. At the time of their joining the organization, data were collected through a structured questionnaire. Census sampling procedure was applied and appropriate statistical tools have been used for analysis and the results.

KEYWORDS: Behavioral Competency, Technical, Competency, Graduate Apprentices, Status

INTRODUCTION

Industrial organizations' contribution towards the economic growth of India is still much marginal and reasonable. People in the organizations at all level ought to put efforts towards achieving maximum profits. In order to achieve such focused results, organizations need to acquire the talents of having required competencies. With puzzle, the engineering graduates are looking for getting lucrative jobs with their academic profile but not being aware of the expectations of Industries.

Latest Aspiring Minds National Employability Report reveals that only 20 per cent of the engineering graduates is 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 marketplace. Here the authors assume that the status of the Engineering Colleges plays a major role in developing the required Behavioral and Technical competencies like attitude, knowledge and practical skills.

Rational of the Study

The authors believed that the status of Engineering Colleges viz. Private, Deemed to be University and Government influences on the behavioral and technical competencies of engineering graduates. The study will enlighten the Industries, the gap between the expected and available competencies. It will also help the Engineering Colleges to understand the gap and strengthen the competencies during the course.

Objectives

- To understand the socio-demographic profile of the respondents (Gender, Domicile, and Type of family)
- To know the Competency profile of the respondents with regard to Status of Engineering Colleges.
- To suggest suitable measures to build effective Competencies among the engineering Graduates.

REVIEW OF RELATED LITERATURE

Male. S. A (2010)

A review of 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 the 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.

Renee Polziehn (2011)

This study was mainly on Skills expected from Graduate students in search of Employment in Academic and Non-Academic settings. He stated that making lists of soft skills and offering sessions to students might be the first step to getting graduate students to think about what they could offer future employers.

Gwang-Jo Kim (2012)

In his edited book, he shared that preparing young people to enter the labor market has therefore, become a critical responsibility for universities. However, the relevance of their programs and the employability were 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 labor market and to enhance their capacities to meet specific workplace demands.

METHODOLOGY AND MATERIALS

The universe of the study was 149 engineering graduates, selected during Jan, Feb and March 2017 on merit among the applicants from different engineering colleges in Tamil Nadu for undergoing one-year Graduate Apprenticeship at a Heavy Engineering and Manufacturing Public Sector. To assess the competency levels of the respondents the authors have undertaken a Descriptive Research study. The census sampling procedure was applied to collect the required data through a structured questionnaire. The SPSS (Statistical Package for Social Science) tool was used for computing, analyzing and arriving conclusions.

ANALYSIS AND INTERPRETATION

The primary data was the data collected from 149 respondents through structured questionnaire formed first-hand information. Other sources like books, journals, research articles, newspapers, documents etc, were used as secondary sources.

Socio-Demographic Findings

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)

Domicile of the Respondents

Out of 149 respondents, more than half, 52.2 percent are from Rural and 47.7 percent are from the 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)

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)

Status of Engineering Colleges

Table 1

Sl No	Status	Respondents	Percent
1	Private	112	75.2
2	Deemed to be University	23	15.4
3	Government	14	9.4
	Total	149	100.0

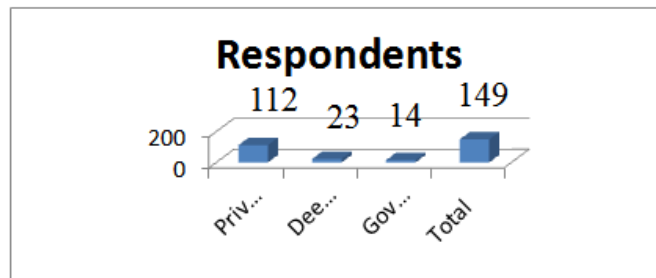


Figure 1

From the above Table 1 it is observed that out of 149 respondents, more than three fourth, 112 respondents (75.2 %) passed out from Private Engineering Colleges, more than one-tenth, 23 respondents (15.4 %) passed out from Deemed to be University and less than one-tenth, 14 respondents (9.4 %) passed out from Government Engineering Colleges.

Chi-square Analysis between the Statuses of Engineering Colleges With Regard To Their Various Competencies of Respondents

Table 2: Status of Engineering College * Behavioral Competency

Status of Engg College	Behavioral		Total
	LOW	HIGH	
Private	57	55	112
Deemed to be University	10	13	23
Government	10	4	14
Total	77	72	149

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.834 ^a	2	.242
Likelihood Ratio	2.917	2	.233
N of Valid Cases	149		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.77

INTERFERENCE

From the above table 2, it is inferred that there is no Significant Variance among the Status of Engineering Colleges on the behavioral competencies since $P > 0.05$.

However, if we look into the low/high value, the respondents passed out from Deemed to be Universities (56.5%) are having high competencies than any other Engineering colleges – Private (49.1%) – Government (28.6%)

Table 3: Status of Engineering College * Technical Competency

Status of Engg college	Technical		Total
	LOW	HIGH	
Private	55	57	112
Deemed to be University	11	12	23
Government	9	5	14
Total	75	74	149

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.215 ^a	2	.545
Likelihood Ratio	1.231	2	.540
N of Valid Cases	149		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.95.

INTERFERENCE

From the above table 3, it is inferred that there is no significant variance among the status of Engineering Colleges on the technical competencies since $P > 0.05$.

However, if we look into the low/high value, the respondents passed out from Deemed to be Universities (52.2 %) are having high competencies than any other Engineering colleges – Private (50.9 %), – Government (35.7 %).

CONCLUSIONS

In overall, there is no significant difference among the status of engineering colleges with regard either to Behavioral competency or Technical competency of the respondents. However, the respondents passed out from Deemed to be Universities are comparatively having higher competencies.

RECOMMENDATION

- **Special Module:** Curriculum can be on added with a special module on the development of competencies
- **Soft Skill:** Courses on soft skill can be added to develop Behavioral competency
- **Technical Sessions:** By having MoU with nearby engineering giants, services of industry experts may be used to enhance technical competencies

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