A Study on Skill Level of Engineering Students and their Employability Quotient

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Abstract

Employability is confluence of several skills, abilities, knowledge, competencies and capabilities that enable individuals to get employment and be successful in their professional careers. It helps them individually as well as institutionally. It also dwells at the skill sets, tool sets and mindset that is essential to execute tasks effectively and efficiently. Engineering colleges are mushrooming and the quantity of technical graduates pass out every year from educational institutions has increased. It is reported that employers do not get the applicants with right skill set, mind set and tool set especially in the engineering and construction sectors. Currently there is a wide chasm between what the educational institutions are churning out and what the industry expects. The employability quotient is also used as a basis to find out the employability status of the respondents as not employable, employable with training and readily employable. In this paper an attempt is made to analyse the skills level of engineering students and their employability quotient.

Keywords: Employability, Analytical ability, Attitude, Aptitude, Employability quotient

Introduction

For decades, lack of employment opportunities and underemployment of educated masses have been important issues in Indian labour market. Interestingly, during contemporary times the tide is reversed and industry is not finding 'employable work force'. The term 'employability' has gained currency in the Indian policy circles with politicians and functionaries in the industry airing similar views.

Employability of a graduate is the propensity of the graduate to exhibit attributes that employers anticipate, will be necessary for the future effective functioning of their organisation. The nature of employability is shaped by the changing nature of the environment of work. The demands in the labour market changes as per the change in the product market, production systems, change in work organization, technological changes and so on. The changes in the global organization of production, trade liberalization and the processes of economic restructuring are accompanied by the trend towards labour market flexibility.

Statement of the Problem

Employability is confluence of several skills, abilities, knowledge, competencies and capabilities that enable individuals to get employment and be successful in their professional careers. It helps them individually as well as institutionally. It also dwells at the skill sets, tool sets and mindset that is essential to execute tasks effectively and efficiently. Engineering colleges are mushrooming and the quantity of technical graduates pass out every year from educational institutions has increased. It is reported that employers do not get the applicants with right skill set, mind set and tool set especially in the engineering and construction sectors. Currently there is wide chasm between what the educational institutions are churning out and what the industry expects. Employability skills are the ability of individuals to exhibit their skills to the prospective employers and the ability to execute the tasks thereby achieving organizational goals and objectives.

There is strong association between personal characteristics such as gender, age and community status of the respondents and their employment quotient. For this purpose

employability quotient is calculated based on the performance of respondents in aptitude and attitude tests. The employability quotient is also used as a basis to find out the employability status of the respondents as not employable, employable with training and readily employable. In this paper an attempt is made to analyse the skills level of engineering students and their employability quotient.

Sample Size

The study has been conducted among the 22 colleges where the total numbers of respondents pursuing the chosen six field of study are 9720 and thus they constitute the universe of the study. By making a balance between the limited time available for a part time researcher on one hand and the requirement of a number of observations for a rigorous statistical inferential analysis on the other hand, it has been decided to select a sample of 486. After eliminating the 36 unusable interview schedule, 450 was taken in account.

TABLE 1

DISTRIBUTION OF SAMPLE RESPONDENTS

Branch of Study	Population	No of Respondents	Percentage
CSC	1990	92	20.5
ECE	2140	99	22.0
EEE	1995	92	20.5
IT	2050	95	21.0
Mechanical	1015	47	10.4
Civil	530	25	5.6
Total	9720	450	100

Source: Computed from Primary Data

Employability Quotient and Aptitude, Attitude and Combined Skills

The employability quotient based on the aptitude skill consists of five skills, namely verbal ability and reading comprehension, general ability, analytical ability, programming fundamentals and general knowledge.

The employability quotient based on the attitudinal skill consists of five skills namely attitude towards work, leadership skills, decision making skills, time management and team work

Employability of the respondents is not only based on any one of the component of aptitude or attitude, but the recruiters consider both attitude and aptitude which is termed as combined factors of employability.

The respondents have been classified under the following three categories namely readily employable, employable with training and not employable based on the scores obtained in the employability quotient.

TABLE 2

EMPLOYABILITY QUOTIENT AND APTITUDE, ATTITUDE AND COMBINED TEST

Score range of EQ	Based on Aptitude Test		Based on Attitude Test		Based on Combined Test	
	No.	**%**	**No.**	**%**	**No.**	**%**
Not employable (Less than 60%)	434	96.4	0	0	233	51.8
Employable with Training (Between 60 % and 70 %	16	3.6	52	11.6	203	45.1
Readily Employable (Above 70%)	0	0	398	88.4	14	3.1
Total	450	100.0	450	100.0	450	100.0

Source: Computed from Primary Data

The present level of employability among the students based on aptitude test reveals that only 3.6% of the respondents are qualified for employable with training and 96.4% of the respondents are not employable. There are no respondents who are readily employable. The present level of employability among the students based on attitude test reveals that 11.6% is employable with training, 88.4% of the respondents are readily employable. All the respondents are either employable or employable with training; there is no respondent who is not employable based on the attitude skill. The present level of employability among the students based on combined test reveals that only 3.1% of the respondents are readily employable, 45.1% of the respondents are employable with training and 51.8% of the respondents are not employable.

Skill Level based on Employability Quotient

The skill level of respondents are further analysed for the various aptitude and attitude skills. The analysis is also carried out to find out the level of various skills in each branch of study undertaken by the respondents. For skill level analysis, the respondents have been classified under the following three categories based on the scores obtained in the employability quotient

TABLE 3

SKILL LEVEL BASED ON EMPLOYABILITY QUOTIENT

S. No.	Score range	Skill level Grouping
1	Scores Less than 60%	Low
2	Scores between 60 % and 70 %	Moderate
3	Scores above 70%	High

Source: Computed from Primary Data

Those who have obtained scores of less than 60% are classified under low skill level group, those who have obtained scores between 60% and 70% are classified as moderate skill level group and those who have scored above 70% fall under high skill level group.

Type of Skills and Skill Level

The respondents have been classified into various skill level groups based on the scores obtained in the aptitude and attitude skills namely Analytical Ability , Verbal ability,

General Ability, Programming Fundamentals, General Knowledge, Attitude towards work, Time Management, Team work, Decision Making skills and Leadership skills. The grouping of respondents into various skill levels has been based on the scores obtained by them in the test which was administered through the questionnaire during the data collection stage. Table 4 provides the classification of respondents based on the type of skill and level of skill.

TABLE 4

TYPE OF SKILL AND SKILL LEVEL

Type of Skills		Skill Level			
		Low	**Moderate**	**High**	**Total**
Analytical Ability	No.	430	8	12	450
	%	95.6	1.8	2.7	100.0
Verbal ability	No.	387	56	7	450
	%	86.0	12.4	1.6	100.0
General ability	No.	165	94	191	450
	%	36.7	20.9	42.4	100.0
Programming Fundamentals	No.	399	25	26	450
	%	88.7	5.6	5.8	100.0
General Knowledge	No.	384	40	26	450
	%	85.3	8.9	5.8	100.0
Attitude to work	No.	5	74	371	450
	%	1.2	16.4	82.4	100.0
Time Management	No.	45	200	205	450
	%	10.0	44.4	45.6	100.0
Team Work	No.	13	73	364	450
	%	2.9	16.2	80.9	100.0
Decision Making	No.	4	119	327	450
	%	0.9	26.4	72.7	100.0
Leadership Skills	No.	13	65	372	450
	%	2.9	14.4	82.7	100.0

Source: Computed from Primary Data

Table 4 reveals that there is huge skill gap between the skill level of engineering students and the expected skill level by the corporate in aptitude skills. The table also shows that the skill gap is very high for the following skills: analytical ability 95.6%, verbal ability 86%, general ability 36.7%, programming fundamentals 88.7% and in general knowledge 85.3%. In general ability which is the third preferred skill by the employers 63.3% (i.e. 20.9%

+ 42.4%) of the respondents have skill above the standard level of performance. The highest skill gap is in analytical ability which is the most preferred skill by the corporate, where 95.6% of respondents are below standard.

Conclusion

The engineering students have to learn and improve programming knowledge in Algorithms, Flowcharts and Software Development Life Cycle which are expected by corporate from the prospective job seekers. They should develop the habit of reading newspaper and keep themselves updated about the current events and changes happening both at domestic and international level. As the IT industry is growing at a rapid pace, the corporate expect the job seekers to be updated about the new technologies. All the scores of attitude skills are above the standard level of expectation. Further it shows that the respondents have a very high attitudinal skills and low level of aptitude skills. The students should undergo various level of training over their course of study to acquire various skills like communication, quantitative skills, presentation skills, leadership skills and positive attitude.

References:

1. Ashish Arora and Alfonso Gambardella, (2004). "The Globalization of the Software Industry: Perspectives and Opportunities for Developed and Developing Countries", Working Paper 10538, National Bureau of Economic Research, Cambridge.

2. Duyen Q. Nguyen, the Essential Skills and Attributes of an Engineer: A Comparative Study of Academics, Industry Personnel and Engineering Students, Global Journal of Engineering. Education., Vol. 2, No.1 © 1998 UICEE, Printed in Australia

3. Green W., Hammer S. and Star C. "Facing up to the challenge: why is it so hard to develop graduate attributes?" Higher Education Research and Development, Volume 28, 2009, Issue. 1, pp. 17-29

4. Jane Lees, (2011) The Skills Job-Hunts Engineers must show Graduate Recruiters" National Grid, Oxfdordshire

5. Kamna Solanki, Sandeep Dalai and Vishal Bharti (2009), "Software Engineering Education and Research in India: A Survey", International Journal of Engineering Studies, Vol. I (3)

6. Purcell, J. Purcell, K. and Tailby, S.(2004). "Temporary work agencies: here today, gone tomorrow", *British Journal of Industrial Relations.*, 42(4):705-725.

7. Ramana, PSV. (2009). "Qualitative requirements for employability", *HRM Review*, 2(4):47-48.

8. Robert Cowen, (1996). "Last past the post: comparative education, modernity, and perhaps post- modernity", *Comparative Education Review.,* 32(2):151-70.

9. Saemah Rahman, Seri Bunian, Mokhtar, Ruhizan, Mohd Yasin, Mohd Izham and Mohd Hamzah. (2011). "Generic skills among technical students in Malaysia", *Procedia Social and Behavioral Sciences.*, 15(1):3713–3716.