Dialectics of Employability and Employment of Engineering Graduates

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Abstract

Purpose of this paper is to study the dialectics of employability and the employment of engineering graduates in the situation having more passed out graduates than the demand.

The perception of employers towards employability skills required for entry level is the key point in the employment. This study seeks to address the three questions: (i) which skills do employers consider important when hiring new engineering graduates? (ii) how satisfied are employers with the skills of engineering graduates? and (iii) in which important skills are the engineers falling short? The study confirms a widespread dissatisfaction with the current graduates - 64% of employers hiring fresh engineering graduates are only somewhat satisfied with the quality of the new hires or worse.
The study revealed that there is significant difference between the perception of students and their employers.

Keywords: Dialectic, employability, employment, engineering graduates, employers, perception.

Introduction

Shifting from production oriented engineering jobs to service oriented engineering jobs demands professionals with both sound technical and behavioral skills to attain and retain the job. Organizations are being different modes of recruitment to attract quality talent to this work force. Recruiting students directly from engineering colleges is one of the most popular methods.

Technical education plays a vital role in human resource development of the country by creating skilled manpower, enhancing industrial productivity and improving the quality of life. The perceived notion is that the graduates passing out from the engineering colleges will have good subject knowledge. An engineering graduate with sound technical knowledge, pleasing personality and good communication skills was the best choices for the organizations. But the tough competition among companies and high CTC of employee, could not give time spam to get acquainted with the job. Today's employers are not position to give time to fresh graduates to learn the techniques as they market competition and high CTC of each employee. So they prefer those graduates who have ability to perform quickly and have some knowledge and exposure of the job. This expectation of employees is creating the challenges to the engineering graduates and the engineering colleges.

Employability Skills of Graduates:

Employability doesn't merely talk about attaining jobs. It focuses on sustainability where the engineering professional can provide technical solutions to the society through innovation and best practices. Although the country has enough potential to deliver to the needs of the global talent market, the strong employability challenge of the graduates; especially engineering graduates became the bottleneck for India's growth perspective. Even in India, which produces around 1.5 Million engineers animally, organizations are finding it increasingly difficult to find the qualified

workers they require. There were several studies conducted in India to know the employability skills of the students. Though the findings are different in different studies but all are agree that 70-75% engineering graduates are unemployable. The pessimistic situation is that the unemployability is reaching higher than 90%.

Industry looks for a different mix of skills, abilities, capabilities and competence in potential hires depending on the business. Industry also looks for multi skilled individuals. The unemployment is not because of lack of job opportunities but due to lack of skill available in the job aspirants. Employability skills are all about the ability to exhibit their skills to the prospective employers and the ability to execute the tasks thereby achieving organizational goals and objectives. Employability skills refer to specific skills essential for employment. These are the critical traits required to perform tasks at workplace. The needs of employability skills differ from country to country and from sector to sector and from time to time.

Skills grouping:

The specific skills can be grouped into three overall groups of skills: Core Employability Skills, Communication Skills, and Professional Skills.

The main Core Employability Skills may be considered as Integrity, Self-discipline, Reliability, Self-motivated, Entrepreneurship Skills, Teamwork, Understands and takes Directions for work assignments, Willingness to learn, Flexibility and Empathy.

The Communication Skills are: Written communication, Design & conduct experiments, and analyze and interpret data, Reading, Communication in English, Technical Skills, Verbal communication, Basic computer and advanced computer.

The Professional Skills are: Identify, formulate, and solve technical/engineering problems, Design a system, component, or process to meet desired needs, Use appropriate/modern tools, equipment, technologies, Apply knowledge of mathematics, science, engineering, Customer Service Skills, Knowledge of contemporary issues and Creativity.

Although all three skills are important for employers and employers' looks for multi skilled individuals, Core Employability Skills and Communication Skills (Soft Skills) are more important than Professional Skills. Soft skills, such as reliability and self-motivation have the largest skills gaps. Around 64% of employers hiring fresh engineering graduates are only somewhat satisfied or worse with the quality of engineering graduates' skills. The typical employer is only "somewhat satisfied" with the skill set of the newly hired graduates. The graduates have strong English Communication skills and this is one the most important skills for employability. The graduates lack higher-order thinking skills, such as analyzing, evaluating and creating. This is unfortunate, because these higher-order skills are more important than lower-order thinking skills. Skills such as Problem-solving and conducting experiments and data analysis have a large skill gap. Employers predominantly demand the same Soft Skills irrespective of economic sector, firm size and region. However, firms in different regions and economic sector and of different size demand distinct Professional Skill.

Gap in Perception of Employer and Graduate:

Current technological and economic changes have created a challenging context for students. India is growing in importance for centres for services outsourcing. In present scenario, it has been

observed that company's requirement is huge but they don't hire all the aspirants, they analyse the perspective candidates on certain skills and abilities. This raises the questions like:

1. Why all the aspirants are not able to get the offers even though they come under the same educational system?
2. What are the different types of skills expectation by the companies from the prospective hirers?
3. Is it possible to formulate strategies based on competency mapping of students for enhancing employability?

The employers perceive Soft Skills (Core Employability Skills and Communication Skills) more important than Professional Skills. Skill gaps are particularly severe in higher order thinking skills ranked according to Bloom's taxonomy of thinking skill. In contrast, communication in English has the smallest skill gap, but remains one of the most demanded skills by the employers. While employers across India asks for the same set of soft skills, their skill demands differ for Professional Skills across economic sectors, company sizes, and regions.

Other Challenges in Engineering Education in India and the Solutions:

There are so many other challenges in engineering education in India, some are easy to handle and some are very difficult. To discuss here, we may list as:

- Challenge of up gradation of curricula: The curricula of the courses are not upgraded as the changes are happening in the real world. The cumbersome system to change the curricula, inertia to adopt changes and inefficiency to grasp the new things are the basic reasons.
- Challenge of good faculty shortage: The faculty having good technical knowledge and industry exposures is not available as per the requirements of the colleges.
- Challenge of R&D and its incorporation: The facility of R&D is available in only few institutions. The incorporation of the results is also difficult.
- Challenge of lesser exposure to reality: Technical subjects require that students be exposed to examples of the use of engineering principles as applicable in real life. This exposure is very limited at present.
- Challenge of lesser industry interaction: Technical institutions try to organise industrial visits for students to increase industry interactions but it is rare and not as effective as it should be. The curriculum of industrial training has lost its effectiveness.
- Challenge of good infrastructure: The private institutions are running with business motive so the promoters want to maximum gain with minimum investment.
- Challenge of proficiency in language: Students from remote areas have done most of their studies in their local languages and even the brightest of them find it difficult to understand English. But engineering education is completely in English.
- Challenge of lack in absorbing capacity: The classroom is heterogeneous group of students whose marks range from as low as 40% to as high as 90%. Therefore, the absorbing capability of students is varied.
- Challenge of getting good students: As number of institutions and intake seats are too high and there is no entry barrier for admission in Tier II and Tier III institutions.
- Challenge of rapid growth: NKC under Curriculum Reform in the Engineering Education recommends that industries shall participate in the education process but the rapid growth of the number of engineering institutions in India makes this difficult.

- Challenge in employability: Only 20-30% of graduates are employable by the industry. The situation is grimmer for Tier II and Tier III institutions.

The solutions may be recommended as:

- To provide the solutions of major challenges it is suggested that students of technical institutions should be given internship and on job training opportunities. This will lead to availability of trained human resources to the industries of the region. Further, it will also widen the placement opportunities of the students in the industries and in the service sector. Since technology has become the key factor in deciding the course of development of any nation, there is a need to encourage technology up-gradation of the industries, therefore enhancing the research potential of the industries. All the inventions and innovations stem out from the developed nations, which is a result of tremendous effort that they put in R&D. Thus R&D facilities have to promote in the industries and incorporate in curricula without time gap.

- In times of rapid change, institutions have to become more responsive to changing labour markets and students interests. Unfortunately, universities are not particularly innovative institutions they are not well suited to quickly pulling together whatever resources are needed to respond to a new problem or challenge. This is more serious in India due to the structural rigidities of the system, near absence of competition between institutions, and mindset problems.

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- One the industries in order to promote welfare, should extend financial, managerial support to technical institutions. There shall be arrangement to more interaction between industries and institutes which will lead to providing continuing education, expert exchange, and sharing of resources.

- In recent years, survival initiatives have been taken to bridge the gap. Industry specific and context-specific solution is being tried in many sectors. Experience has shown that private institutions are for more adaptable and non-formal provision is better in responding to the students' demand. Thus, a suitable mix of the public and the private, the formal and non formal provision for technical education and training provide an optimal solution and would meet the changing needs of economy and society.

- Unified education and training system are best suited to respond to changes in the job markets. This would require building pathway between the vocational and the technical education sectors through a national qualifications framework and re-branding of vocational education. Managing public-Private Mix and devising policies that ensure healthy growth of both the public and the private sectors are needed.

- The next solution may be as to restrict the opening of technical institutions and the norms to opening of these institutions must be high and implication of these norms should be carried out without fail.

- The admission should also be restricted to only deserving students and to those who have attitude and aptitude to be technical professionals. AICTE, ECI or other monitoring bodies should come forward to assess the faculty quality and to provide opportunities for their continuous career development.

Conclusion:

The need of today is to create learning opportunities so that graduating candidates are empowered and made adequately employable. The following policy recommendations should be taken into consideration for the improvement of education at technical and engineering institutions. (i) Address the three skill factors (Core Employability Skills, Professional Skills, and Communication Skills) when reforming assessment, teaching, and curriculum. (ii) Emphasize Soft Skills (iii) Interact more with employers to understand the real demands from the market (iv) Improve assessment, teaching, and curriculum (v) Customize courses to meet different demands

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