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# ACADEMY AND INDUSTRY: A STUDY ON THE GAP BETWEEN CURRICULUM AND EMPLOYABILITY

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**ABSTRACT:**

There is a gap between the academy and the industry for better placement of the Engineering graduate in India particularly in Andhra Pradesh. This gap involves so many things in terms of curriculum, skills, tendencies, and environment and so on. Keeping this in mind, the paper titled: *"Academy and Industry: A Study on the gap between Curriculum and Employability"* focuses on the issues involved in the problems in proper placement of the engineering graduates at a proper industry. This study is limited to Engineering Graduates born and brought up in Andhra Pradesh.

**KEYWORDS:**

Academy, Industry, Gap, Placements, Engineering Graduates.

## INTRODUCTION

A perfect harmony between academy and industry is only the ideal situation at the present education scenario. There is always a debate on the gap between requirements of the industry and the actual competencies engineering graduates during their academic career. Many researchers focused in this area to identify the gap and suggest how to overcome them. The present study is focused to identify and analyze these skill requirements as they exist among the engineering students. It also studies different issues needed for engineering graduates' employability and skills. In the changing environment of the society where science and technology is being used at a large scale, every engineering student is expected to learn content at a faster rate than ever before. In doing so, they are expected to develop the "hard" technical skills as well as the "Soft Skills necessary to be successful in the workplace. Most of the surveys throw light on the poor technical and non technical skills of the engineering graduates. These surveys have consistently identified communication, interpersonal and teamwork attributes as competency gaps. There is evidence which supports the contention that, Emotional Intelligence (EI) is crucial to the performance and success of individuals. Now the researchers focused on how it relate to workplace success and performance. There are studies which have shown the positive impact of emotional intelligence on individuals' leadership ability.

Most of the scholars exhorts that Emotional Intelligence (EI) affects almost in every aspect of work

life, employees who are high in EI tend to be 'star performers.' There is also some evidence that it is important in determining group performance demonstrated at average level of individual EI of team members.. Hence, given the strong relationship between EI and performance, EI tests have been advocated for personnel selection and development. Generally, Engineering graduates need to be prepared with non-technical skills besides increasing use of advanced and appropriate technology befitting their future workplace environments. However, it is an accepted fact as found in the literature that there is a mismatch between engineering graduate students' skills and those needed in the workplace.

It is observed through the careers of most of the engineers including managerial tasks that many of them predominantly remained in technological jobs. Furthermore the summary of observation shows that most engineers' careers warranted for a variety of managerial skills and expertise, particularly in leadership and the management projects. These observations warned universities of the graduates falling behind in their ability to meet industrial needs thereby leaving a competency gap, batch after batch. Curriculum's focus on content was found disconnected from engineering practices in separate works that are to be found in identified practical skills, multiskilling computer literacy, communication skills, management skills, personal skills, and problem solving skills as the most important skill deficiencies amongst engineers. Many countries in the world irrespective of their economic and political strength have been analyzing the problem of competency gap between the industry needs and the graduate engineers.

The suggestions of Accreditation Board for Engineering and Technology (ABET) are highly influential at this juncture. Those suggestions are that an engineering graduate must attain:

a) an ability to apply knowledge of Mathematics, Science, and Engineering;
b) an ability to design and conduct experiments, as well as analyze and interpret data;
c) an ability to design a system, component or process to meet desired needs;
d) an ability to function in multidisciplinary team;
e) an ability to identify, formulate and solve engineering problems;
f) an understanding of professional and ethical responsibilities;
g) an ability to communicate effectively;
h) an understanding of the impact of engineering solutions in a global and societal context;
I) a recognition of need and ability to engage in life-long learning;
j) a knowledge of contemporary issues; and
k) an ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

India is having a provisional status – a status passing through standardization and their engineering qualifications. Curriculum content is no longer the key. The accreditation agencies in many countries have transformed their accreditation criteria and standards in terms of core competencies. These agencies recommend that engineering schools should vigorously exploit the flexibility inherent in the outcome-based accreditation approach to experiment with novel models for education. Questionnaire was the main instrument used while interviews were used to provide an insight into non-technical skills required by entry-level engineers. This study found that non-technical skills are important for entry-level engineers in the manufacturing industry. The authors in their analysis found that the ability to follow procedure was the most important skill followed by the abilities to listen, meet deadlines, manage time (time management) and work to schedule. As for adaptive skills, a majority of the respondents selected the following indicators: responsibility, commitment, self-confidence, discipline, committed to the job and willingness to learn as the most valued traits. The findings of this study can be used as a basis for developing a guideline for non-technical skills to be included in the engineering curriculum. It is recommended that the current engineering curriculum at institutions of higher learning enhance both functional and adaptive non-technical skills. In addition, university-industry collaboration should be enhanced to address the skills gap of engineering graduates and the skills requirements of the manufacturing industry.

All the reports related to skills published from various nations identified the skills set and defined each of the set in standard terms. A common theme found and expressed in almost all the reports, stress the need for a continuous learning process denoted by a clause namely, 'lifelong learning and generic skills acquisition by students for economic, cultural and social development'. The premise is that generic skills, attributes and values will be introduced through curricula. These skills include qualities such as 'critical thinking, intellectual curiosity, problem-solving, logical and independent thought, effective communication and related skills in identifying, accessing and managing information; personal attributes such as intellectual rigor, creativity and imagination; and values such as ethical practice, integrity and tolerance'

While defining the skills needed in the workplace is important, determining the competence level of graduates to perform the skills is also relevant. On the basis of competencies, graduates need to be proficient in order to succeed in the workplace. The authors initially assumed that technical skills were most lacking and focused their intent on defining the ways to promote and advance graduates' technical skills and abilities. However, the participating employers concluded that recent graduates (those with less than five years of working experience) were ill-prepared in developing their "generic skills" (non-technical skills) and that these skills needed to be improved upon.

To reduce the competencies into digestible terms, factor analysis was performed. Four "bases of competence" were identified which are:

i. Mobilizing Innovation change
ii. Managing People
iii. Tasks, communicating,
iv. Managing Self.

As a result of the interviews and discussions and a thorough review of the literature, competencies were identified. They are as follows:

1. Administrative skills (Problem-solving/analytic)
2. Quantitative and mathematical skills (Decision-making)
3. Decision-making skills (Planning and organizing)
4. Ability to organize and plan (Personal organization/time management)
5. Ability to be creative and innovative (Risk-taking skills)
6. Oral communication skills (Oral communication)
7. Ability to adapt and be flexible (Written communication)
8. Leadership skills
9. Written communication skills (Interpersonal skills)
10. Ability to initiate (be a self-starter) Managing conflict
11. Technical skills (Leadership/influence)
12. Problem-solving skills (Coordinating)
13. Ability to work independently Creativity/innovation/change
14. Visioning
15. Ability to conceptualize
16. Learning skills
17. Personal strengths
18. Technical skills

Engineers and Professors also agreed on the lowest rated competencies which included development know-how and practical engineering experience. Engineers rated specialized engineering proficiency and research know-how as lesser important engineering competencies. Very important general professional competencies include communication skills, English language skills, teamwork abilities, presentation skills, and leadership skills. Medium importance was assigned to general professional

competencies of social skills, ability to maintain and develop a broad general education, and management of business processes and administration. General professional competencies of marketing, finance, and other language skills were rated as lesser important. All three groups regarded law as least important general professional competency. Faculty development programs were organized to help them understand the underlying pedagogical issues. Learning theories and epistemological frameworks are being used to shift the focus of teaching, learning, and assessment processes on competency development. To sum up, the Core Skills identified in various nations are similar to the Key Skills developed in countries but slightly narrower on the surface.

The evidence in the published literature demonstrates that employers continue to face recruitment difficulties. One-fifth of reported vacancies could not be filled due to lack of applicants with the necessary skills contributing to an overall employability percentage ranging between 20 and 30 approximately. However, employers may not place an emphasis on developing the skills they need 'in-house'. They need skilled, 'ready to employ' entrants. Confirming this fact, Anastasi express that, "Qualifications do not appear to be important for a large number of employers and jobs, consistently ranking beneath characteristics and soft skills in recruitment frameworks". Overall, the evidence suggests that a focus on qualifications alone may not contribute to an individual's employment outcomes, due to low emphasis on these in recruitment. Developing soft and generic skills, on the other hand, is likely to be more important. The common denominator regarding general key competencies comprises of Communication, Working with others and Problem solving. Most of the reports did not see the light of implementations beyond their recommendations. Some of the researchers pointed out those problems existed in implementation because definitions of what constitutes generic skills, attributes and values are neglected.

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