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COMMUNICATIVE SKILLS IN MULTICULTURAL ENGINEERING CLASSROOM:
EMPLOYERS' EXPECTATIONS AND EMPLOYEES' PREPAREDNESS

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ABSTRACT

The 21st century Indian economy is a robust one. However, lack of skilled labor has been a major constraint in its continued and consistent growth.”(Hiroyuki, 2004)[1].This problem continues to grow and is adding on to the employability of engineers hugely especially the institutes with a multicultural classroom with majority of students from Hindi speaking belts. In this paper, the author will discuss, based on extensive surveys conducted by her, the right skill set needed by engineering graduates to be meaningfully employed. The surveys were conducted amongst industry management, engineering graduates and college professors to address three areas: (i) Skills considered important by employers in the graduate engineers (ii) Skills that engineering graduates lack the most, and (iii) How these skills can be acquired by the graduates while they are in college.

The author compares differences in learning styles, preparedness, skills gap, interest level between male and female students using state-of-the-art statistical packages. The sample was collected and analyzed and the findings are shared, some of which are (i) Modifying the learning process (ii) Emphasizing consistent language and soft skills training, (iii) Amending the assessments, and curriculum, taking it away from lower-order thinking skills to higher order skills such as critical thinking, analysis and creativity; (iv) Increasing the industry-academia interaction to understand the demand for respective skills. Key words: Employability skills, Soft Skills, ELT Skill gap.

INTRODUCTION

One of the main impediments to further economic growth in India is the insufficient supply of employees with quality (Kamsah, 2004)[2].Although, the Indian economy has grown more than 8% on average over the past 5 years, including the year of the unprecedented financial crisis in 2009, the skill shortage is still one of the major constraints in most industries in India, (World Bank, 2009b)[3].The most popular IT, infrastructure and power sectors where engineers have been playing a critical role are facing difficult situations when it comes to unmet demand for skills as assessed by the world bank. For example, the IT sector has reported lack of skills as the serious most obstacle for growth, and salaries have risen 15% annually from 2003 to 2006 mainly because of shortage of qualified workforce (World Bank, 2009). The Infrastructure sector also faces severe shortage of skilled manpower. There is a dire need to increase its hiring by at least 2-3 times of the 2008 level where 6,000 – 7,000 fresh engineers and diploma holders joined the Infrastructure and road workforce (World Bank, 2008). Also in the power sector, the shortage of qualified engineers is a big concern. It

needs more skills and knowledge at all levels of the workforce, particularly due to the growing concerns over depletion of conventional energy sources and environmental degradation (Ministry of Power, 2007)[4]. As per the widely popular and quoted report by the National Association of Software and Services Companies (NASSCOM) and McKinsey in 2005, only 25% of the engineering education graduates are employable by a multinational company. The report highlights that meager percentage of about 17.45% of engineering graduates of the year 2011 were employable. National Association of Software and Services Companies' (NASSCOM)[5] survey of 2011 showcased that over 75% of IT graduates are not ready for jobs.

Literature Review

Most employers comment on the lack of skills of the newly graduated hires, which the employers link to shortcomings in the education system. To this the higher education system has responded by massively increasing the opening up of more engineering colleges with higher intake resulting in more engineers at hand. In the time between 1998 to 2008, (MHRD, 2009)[6].the number of students enrolled has increased 800 percent This high quantitative expansion has majorly led to have led to an average decline in the quality of the students entering, the teaching and, consequently, the quality of the graduating engineers (Jha et al. 2009)[7]. Despite the seriousness of the situation, very little research has been conducted to identify the kinds of skills required by employers and the measure in which skills graduates meet the employers' expectation. There is an increasing demand for insights from teachers, administrators, and policy makers. For example, Government of India is implementing a program with World Bank co-finance, to improve quality of engineering education and increase learning outcomes of engineering education graduates. For this program and similar initiatives, it is crucial to identify specific bottlenecks in skills demanded by employers, and provide detailed information and practical suggestions to overcome the skill shortages. With this intention, a survey was conducted with the management professionals and educationist to understand the specific skill set that is demanded by the industry in their workforce going forward in time. Specifically, the survey seeks answers for the following three questions: (i) Which skills do employers consider as being most important when hiring new engineering graduates? (ii) How satisfied are employers with the skills of engineering graduates? (iii) What are those important skills where the engineers are falling short?

Engineering Employability Skills Required By Employers

Engineering employability skills, also known as generic skills are highly related to non-technical skills. Employability skills have become popular since 1980. The term has been given different names and expressions which differ across continentals. It is sometimes referred to transferable skills, generic capabilities, basic skill, essential skills, work skills, soft skill, core skills, core competencies and enabling skills or even key skills (DEST 2007; Yorke, 2006; Knight, P. and Yorke, M., 2002; Hiroyuki, 2004). These non-technical skills have been playing an important role for a graduate in getting employed and doing well in the workplace (DEST, 2006)[8]. The focus of this study is to investigate the engineering employability skills set required for engineer entry-level in several countries as mentioned above. The set of employability skills identified are the required employability skills required in fresher or entry-level engineering graduates. Employers' expectation and perception play an important role in determining the essential skills needed.

At this juncture it is also very necessary to understand the Global Employability Skills Set recruiters are looking for these days.

In 2004 the Singapore Workforce Development Agency (WDA) introduced the Singapore Employability Skills System (ESS). This system consists of a set of generic employability skills that is applicable to all industries. These skills have been identified to enhance worker's abilities and increase a worker's effectiveness. There are ten employability skills are considered as "... workers can transfer and apply these skills across industries and jobs" (WDA, 2006)[9]. Table 1 shows the employability skills identified by WDA.

The Employability skills system developed by WDA is recognized by industries and employers, and it becomes guidance to workers, potential workers, graduates, industries and employers in Singapore. (WDA, 2006).

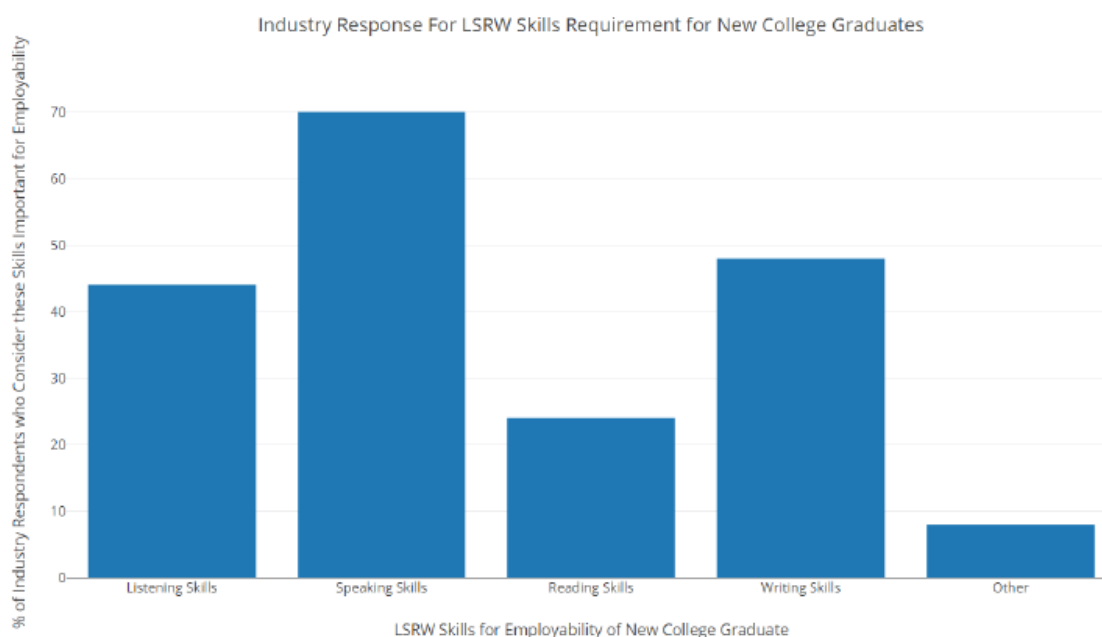
Table 1: Ten (10) employability skills identified by WDA

No	Employability skills
1	Communication & relationship management
2	Workplace literacy & numeracy
3	Information & communications technology
4	Initiative & enterprise
5	Problem solving & decision making
6	Workplace-related life skills
7	Lifelong learning attitude
8	Global mindset ,
9	Self-management
10	Health & workplace safety

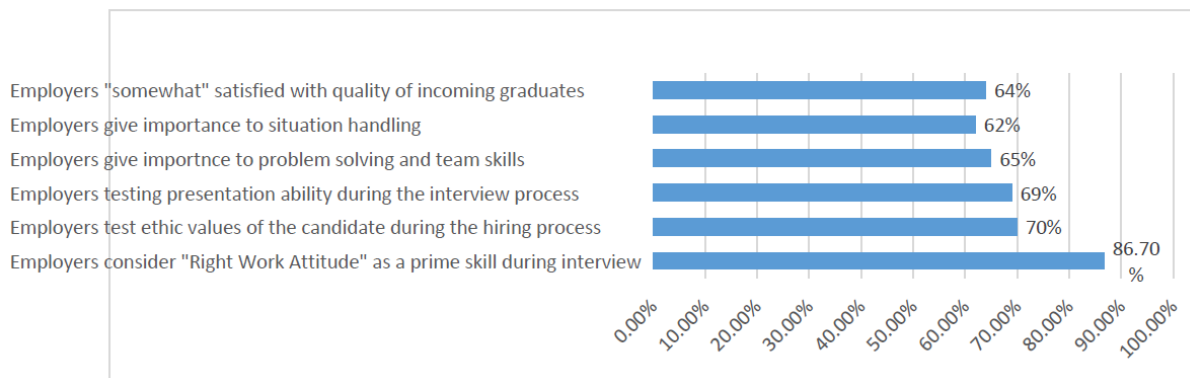
Methodology

In order to assess this ever growing skills gap which is unhealthy for both the industry and the academia a survey was carried out with 200 professionals’. The procedure adopted in this research was a combination of the qualitative and the quantitative. To obtain data, the following methods were used: questionnaires, interviews, observation and direct experience. A data of 200 professionals from industry was collected through a sample questionnaire, focus group discussions and personal interviews. The survey questionnaire was designed to determine the perception of employer’s feedback on the required employability skills in a fresher. A questionnaire was developed based on the knowledge gained from the past studies to gather the perception of academia and corporate on the expected employability attributes. The questionnaire was a self-administered one that was used for assessing employability skill sets required in the following engineering work profiles. A total of 8 questions with sub parts were given in the questionnaire and responses recorded for 190+ Industry professionals .The questions were both multiple choice questions and open ended ones targeted towards enquiring skill set looked for in an engineer in the above fields. The results were analyzed on excel charts and assessments made.

FINDINGS: The findings clearly signifies that in communicative competency out of the four LSRW skills (Listening, Speaking, Reading and Writing),the Speaking skills holds the highest weightage of 70 % which means that verbal communication skill is a prime concern of the recruiters and employers in the global scenario.



Graph showing required skill set by Industry in an employee



The other finding about the skill sets recruiters look for in a prospective employees in their Industry as per the above graph also throws an interesting light on the fact that soft skills and interpersonal skills are very high in demand at the workplace. It was observed that that 86.7 % of recruiters consider right work attitude as the prime skill looked for in a candidate during interview (reference needed). To add on 70 % of employers test the ethics and values of a candidate during short listing of candidates whereas a big 69% of employers test the presentation ability in a fresher during the recruitment drive.

Around 65% employers said that the problem solving skills along with team skills was sought out ones. Situation handling and team skills are also key skills as responded by 62% Industry Professionals. The skills with high factor loading are "Integrity", "Self-discipline", "Reliability", "Self-motivated", "Entrepreneurship Skills", "Teamwork", "Understands and takes directions for work assignments", and "Willingness to learn". These factor consolidated together are named Core Employability Skills, since these skills are not occupation specific, but cuts across occupations. 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 "a bit satisfied" with the skill set of the newly hired graduates. Most employers comment that the graduates lack the much required 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, situation handling, project handling have a large skill gap.

According to Kasahara (2001) and Owa (2001) as reported in Nguyen (2005)[10], they both agreed that Japanese graduates lack the initiative and problem solving skills that are most needed by industrial employers. Employers and leading engineers agreed that local engineering graduates are lack of oral and written communication skills and there is ample evidence all around us that these basic employability skills have much impact on capabilities of new entry-level job applicants to get a job. (Hassan, 2007) [11]. Labor market conditions for engineering graduates today are particularly tough due to globalization and competition as the numbers of graduates are continuously increasing. Engineering graduates worldwide should have acquired certain employability skills to be competitive.

The findings suggest that the three most agreed and similar necessary skills are communication skills, problem solving and interpersonal skills. Employers from the Asian countries also agree that good communication skills is very important followed by soft skills such as problem solving and interpersonal skills. These skills are essential and even more important than most hard skills, at the same time information technology, lifelong learning and self-management skills are considered essential too. According to Nguyen (2005) the topmost skills required by the employers are 1 Communication skills 2 Responsibility 3 A balanced personality 4 Problem solving skills Cooperation (Work in team) Initiative 5 Goal-setting skills Desire for challenge Flexibility 6 personal presentation skills Vitality Sincerity 6 Visioning skills Curiosity Creativity 7 IT and computer skills Ambition Individuality 8 Leadership skills Optimism Sensitivity 9 Self assessment skills and 10 Entrepreneurial mind. Sources: Nguyen (2005)

Findings suggest the following aspects:

1. Based on the findings these specific skills can be grouped into overall groups of skills comprising of Core Employability Skills and Communication Skills.
2. Among the skills most required right work attitude, problem solving, project handling and entrepreneurial mindset are the major ones sought out for in a fresher

3. The graduates having strong English Communication skills are selected and this is one the most important skills for employability
4. The majority of graduates lack higher-order thinking skills, such as analyzing, evaluating and creating. The syllabus covered in engineering curriculum with respect to job training doesn't consider these aspects of training.
5. Employers predominantly demand the same Soft Skills irrespective of economic sector, firm size and region.

RECOMMENDATIONS

- 1) Restructuring and modifying the Engineering English curriculum to make it more relevant with present day learners need. Preparing necessary program to develop those employability skills into students' profile certainly requires proper preparation and planning (Kamsah, 2004) [12].The change has to happen and trickle down from the decision makers to the end users.
- 2) Emphasizing Soft Skills on the campus and creating an ecosystem within the institute premises empower change in the students. Regular monitoring and hand holding is required to create global mindsets and personality as an outcome.
- 3) Interacting more with employers to understand the real demands from the market is a very important element to look at and imbibe. Regular Industry Academia interactions have to happen with experts from the Industry coming and talking about the Industry expectations which shall help the graduates to improve their skill set accordingly.
- 4) Improvement in assessment, teaching, and curriculum is the only key to bring a change in student mindset and make them industry ready. The Universities have to adopt state of art teaching learning methods using digital platforms and blended learning which is the latest and tested way to learn and imbibe fast.
- 5) Customizing courses to meet different demands. The emerging job roles in the century going ahead are the ones which require a student to work independently and have the ability and skills to take up projects with personal responsibility accomplishing it from start to finish on his own. In order to develop such skills an entrepreneurial mindset has to develop in them. The campus must provide the students with such skills through some value added courses which can work wonders in creating that ecosystem. Engineering graduates nowadays need to embrace themselves with technology more than ever to stay competitive. The students that are serious on their employability skills can obtain and strengthen their work-readiness by going through industrial trainings or practical trainings or by getting help from place of study to gain the ability to apply knowledge effectively in their future workplace. Engineers at present or in future must be able to do more. Not only performing technical tasks, but also having mission, vision, dedication, determination and understand professional, social and ethical responsibilities. Engineering graduates must develop the essential skills and attitudes to be ready to work globally after graduation.

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