A GAP BETWEEN EMPLOYERS EXPECTATIONS AND ENGINEERING STUDENTS LEVEL IN EMPLOYABILITY SKILLS

Dr. Ravichandran. M[1], Assistant Professor, Anna University, BIT campus, Trichy, INDIA.

Abirami P.G[2], student, Anna University, BIT campus, Trichy, INDIA.

pgabirami11@gmail.com.

ABSTRACT

This study of employability skills among engineering students explores various abilities of people including fundamental skills, technical skills, interpersonal skills and critical thinking skills. This study identifies that there is a gap between the skills expected by the industry and actual skills possessed by the candidates. Employability skills should be well equipped or developed among the engineering students, so that they can get the job easily. The research design used for this study is descriptive study. Sampling technique adopted for the study is convenient sampling, non-probability sampling. Data collection is made with both primary and secondary data in this study. The primary data were collected through questionnaire by means of mailing system and direct contact with the employer and engineering students to collect the questionnaire. The source for secondary data's are journals, thesis and research papers. The tools used to analyze and interpret the employability skills among engineering students and employer's expectation from engineering students are percentage analysis, chi-square test, rank correlation and t-test in SPSS.

KEY WORDS: Employability Skills, Final Year Engineering Students, Employer's Expectation, Employment.

I. INTRODUCTION

Education is the process of knowledge, skills, values, beliefs, and habits. It is really a means to discover new things which we don't know about and increase our knowledge. In India's higher education system is third largest in the world. The first two places are United States and china. In India engineering and technology degree holders are 2,588,405 in census 2001. In India as 80 percent of the engineering graduates are unemployable.

According to ABET (Accreditation Board for Engineering and Technology) Engineering is the profession in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize economically the materials and forces of nature for the benefit of mankind.

Unemployment Rate in India is 10.0 percent it will be taken at September 2016. Unemployment rate in Tamil Nadu urban-36, rural-45. In 5lakh engineers only 17.45% are employable for the IT service sectors and 2.68% IT product companies (2011). In mechanical engineering unemployment rate is 6.3%, Civil engineering 12.8%, naval architecture 2.9%, computer engineering 6.7%, electrical engineering 3.7% engineers are not have job.

Therefore the engineering students are must have certain skills to gain a job. The skills are generic skills and lately known as employability skills. Employability has been defined as "the capability for gaining and maintaining employment". Skill is the ability to carry out a task with pre-determined results often within a given amount of time and energy.

Australian Chamber of Commerce "Employability skills are those which support your ability to perform in the workplace, also known as transferable skills learned in one context which can be applied and further developed in other contexts and roles non-technical skills, also known as "soft skills" there is broad consensus about the attributes that employers expect to find in graduate recruits"

The students and graduates are highly motivated, have up-to-date skills and knowledge that can benefit for future. The employability was measured across three domains: IT roles (software engineer, IT product services, ITEs operations), engineering roles (Design engineering, sales engineer) and non-technical roles (business analyst, associate, creative content developer, technical content developer).

Students are not aware in the applications of theories in industry. The students are search the set of skills required by employers, that process is being looked in to only during the final year. It will start in first year they will surely get the job in final year. The employability skill is most important in student's life for get job.

Employability skill is most important to get a job. The gap between the skills expected by the industry and actual skills possessed by the candidates. The most of engineering students are placed in IT, BPO, manufacturing industries, government, etc. This study is a descriptive study the data collection is primary data. The respondents are engineering students and employers.

II. STATEMENT OF THE PROBLEM

Most of the engineering students are not having a job, the major problems are insufficient understanding of basic concepts, not well-versed in their core subjects, lack of exposure, presenting themselves in not clear manner, low level of self-confidence, lack of communication skill, etc. Students are search the set of skills required by employers, that process is being looked in to only during the final year. So this study helps to improve their employability skills and helps them to improve and get employability for the company.

III. LITERATURE REVIEW

(AZAMI ZAHARIM) Studied the comparison of the differences and similarity of employability skills among engineering graduates in different countries. Nowadays employers give importance to employability skills. This is a significant of increasing unemployment. The result indicates these countries have necessary employability skills frameworks to prepare engineering graduates for employment. This paper suggests the engineering graduates must acquire a set of generic skills.

(SOKKALINGAM, 2014) Studied the M.B.A students' ideas on the employability skills. It considered the M.B.A students' personal features related to the factors of employability skills. The findings indicate the outcome of six factors were statistically significant.

(ROZARIO, 2016) Studied the different levels of employability skills in rural colleges. The results of the study may be useful to the government and skill development agencies to design an activity to improve the level of employability skills of the rural MBA students.

(CHUNG-KHAIN WYE, 2009) Investigated whether the undergraduates' core competencies are able to meet with needs set by employers and analyses the effectiveness of person qualities and development in private university. The result shows the undergraduates are all highly competent in possessing personal qualities and skills.

(GOWSALYA.G, 2016) Studied the relationship between employability skills and parents qualification. It gives the idea for the appropriation of the employability skill among engineering students. In employability skills the parents can set out the key choice of students face their employment and developing the employability skills will need for success.

(Maribet. buenviaje, 2016) Studied the most employer faced in selection process of employees. The leadership skills and management skills are very important aspect of student outcomes. The MBA graduates are expected to possess good leadership qualities and usually a good decision maker.

(Mohd Yusof Husain, 2010) Studied to survey the importance of employability skills of **engineering** graduates done employers' perspective. The result showed that employer rated the importance to a high level of employability skills.

(Mohd shanmsuri Md Saad, 2013) Studied to explore the employability skills that students need to possess, as well as the employers' perceptions. The results shows that problem-solving, tool handling expert evidence and presentation skills features are highly demanded of students by employers.

(TD) Studied to concentrates on their final year engineering students' perception to gain industrial placement and increase the value in employability on graduation. The result shows a strong linkage between unique period of employability and placement.

(Mishra, 2016) Studied the value of employers as well as employee towards employability skills necessary for the entry level engineering graduates in companies. The result suggest the engineering graduate should acquire a set of generic skills that is good communication, personal skills, presentation skills, Technical Knowledge, Leadership skills, self-assessment and goal setting.

(Rao, 2016) Studied the basic structured employability skill behavior and to understand the effect of employability skills. The result shows that there is an enough scope for enhancement in skills among commerce students.

(Gurvinder kaur gurcharan singh, 2008) Studied to identify the perception of employers concerning the employability skills wanted in job market and graduates' perception of their currently possessed employability skills. The result shows that younger employers tend to be favorable to graduates' employability skills.

(G.Gowsalya, 2015) Studied the employability skills such as self-understanding, general management and work culture, leadership and problem solving ability and communication. The result shows the candidate who is having a multi-tasking skill to gain employment.

(Umme-Amen, 2014) Studied the gap between the performance of new graduates and employers' expectations through knowledge, skills and abilities (KSA) in service sectors. The result shows that the gap does exist between the employer expectations and performance of new graduates.

IV. EMPLOYABILITY SKILL

Peter Knight & Mantz Yorke (HEFCE/DfES ESECT group) "A set of achievements, understandings and personal attributes that make individuals more likely to gain employment and to be successful in their chosen occupations".

Employability skills are "those basic skills necessary for getting, keeping, and doing well on a job" – Robinson. "Getting a job is not just about having the 'right' qualification it's about your attitude, behavior, skills and abilities. These are known as employability skills.

Employability skills are generally divided into four skills sets fundamental skills, critical thinking skills, interpersonal skills, and technical skills.

Engineering Employability Skills

It can be defined as: "Ability to perform engineering related skills, knowledge and personal attributes to gain employment, maintain employment and succeed in the engineering field". Most useful skills for employability skills for engineering students is English communication

skill, written communication, team player, good problem solving skill, commercial awareness, self-motivation, flexibility, time management.

V. INTEGRATION OF EMPLOYABILITY SKILLS

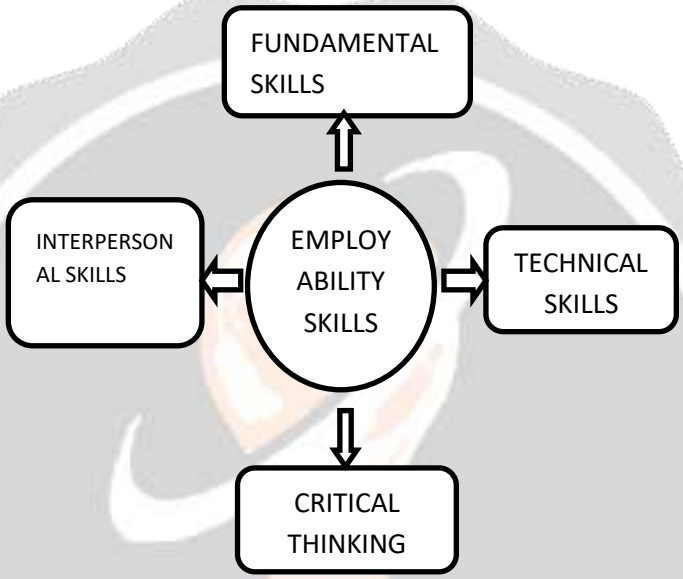

Fig.1 variables of employability skills

Fundamental skills

The ability needed to perform task. The basic ability necessary to function adequately in society. Skills are reading, writing, mathematics and communication.

Technical skills

The knowledge and capabilities to perform specialized tasks related to technology. It also refers to the ability of a certain type of stock trader who uses technical analysis to buy and sell stocks.

Critical Thinking skills

"The process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and evaluating information to reach a conclusion"

Interpersonal skills

The set of abilities enabling a person to interact positively and work effectively with others. In the business domain, the term refers to an employee's ability to get along with others while getting the job done.

VI. EMPLOYERS EXPECTATION

Some of the skills employers are looking for,

Written Communication – Able to express yourself clearly in writing.

Verbal Communication – Able to express your ideas clearly and confidently in speech.

Flexibility – Adapt successfully to changing situations and environments.

Commercial Awareness – General knowledge of business, business experiences or work experience, and, specifically, an understanding of the sector.

Teamwork - Work confidesntly within a group.

Planning and Organising – Able to plan activities and carry them through effectively.

Investigating, Analysing – Gather information systematically to establish facts and principles.

Drive – Determination to get things done. Constantly look for better ways of doing things.

Initiative / Self- management – Able to act on imitative, identify opportunities and proactive in putting forward ideas and solutions.

Time Management – Manage time effectively, prioritising tasks and able to work to deadlines.

Numeracy – Able to carry out arithmetic operations/understand data.

Self- Awareness – Awareness of achievements, abilities and areas of development.

Professionalism – Pays care and attention to quality of their work.

Fundamental skills	**Critical Thinking skills**	**Personal skills**	**Technical skills**
Reading Writing Science Math Oral communication Listening	Learning Reasoning Thinking creatively Decision making Problem solving Planning	Responsible Self-confidence Self-control Social skills Honest Integrity Adaptable & flexible Team spirit Punctuality Good work attitude Self-motivated Self-management Leadership Hard working	Exchanging e-mail Microsoft word(using) Microsoft excel(using) Basic computer science skills Subject knowledge

Table.1. Employability Skills

VII. FRAMEWORK OF THE STUDY

The main objective of this paper is this to find the gap between the employee's expectations with the candidate

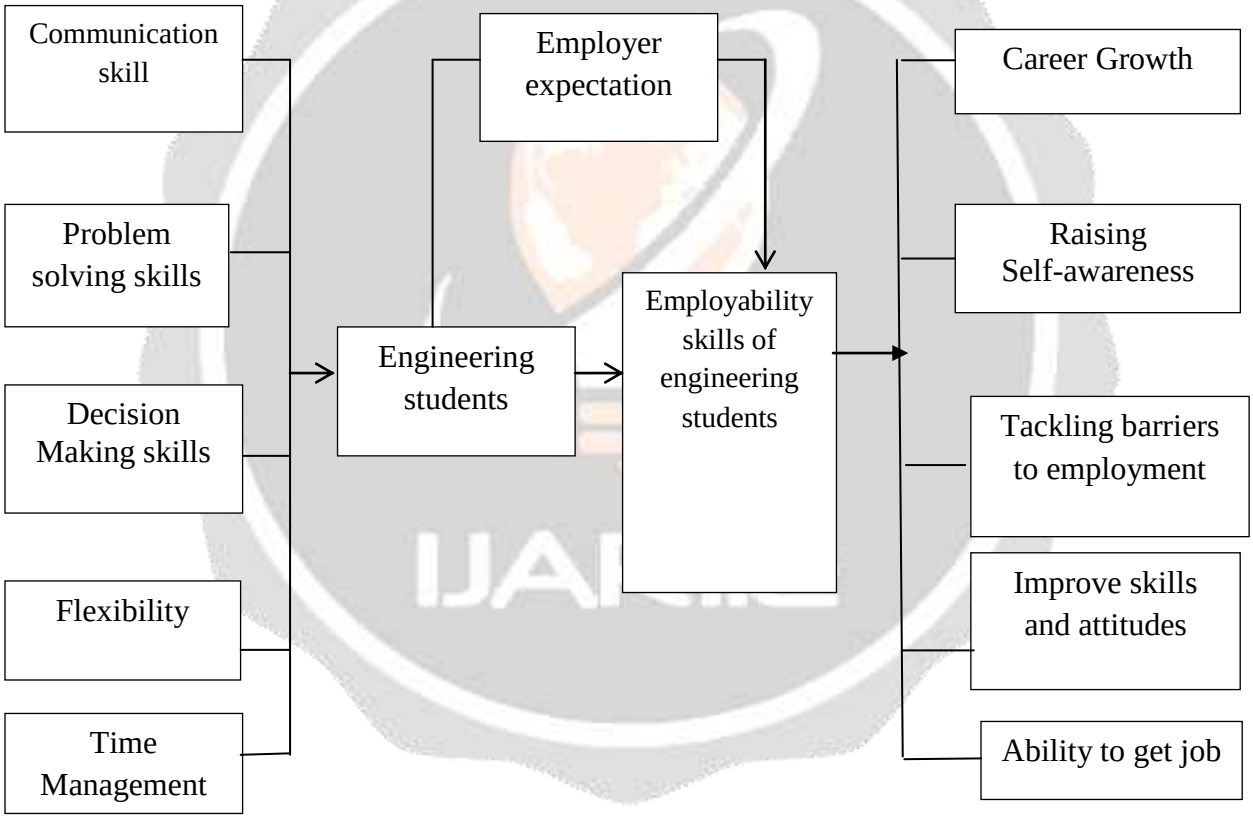

Fig.2. Framework of gap between the skills expected by the industry and actual skills possessed by the candidates

OBJECTIVE OF THE STUDY

1. To study the level of employability skills of engineering students.
2. To measure the gap between the skills expected by the industry and actual skills possessed by the candidates.
3. To suggest appropriate ways to fill the gap in employability skills for engineering students.

RESEARCH METHODOLOGY

Research methods or a technique refers to the researchers use in performing research operations. It can be those methods concerned with the data collection and analysis.

Research methodology is a way to systematically solve the research problem.

RESEARCH DESIGN

"The formidable problem that follows the task of designing the research problem is the preparation of design of the research project is known as research design." (KOTHARI)

- The study is undergone with research design of descriptive analysis.
- The questionnaire was made with scaling technique – five point scales.
- The analysis is made with the tool t-test in SPSS and rank correlation.

SAMPLING TECHNIQUE

The study is made with non- probability sampling in which convenient sampling technique is taken.

The sample size taken for the study is 200 engineering students and 27 employers.

HYPOTHESIS STATEMENT

- Student's oral communication level has difference with employer's expectation level.
- Student's written communication level has difference with employer's expectation level.
- Student's flexibility skill level has difference with employer's expectation level.

- Student's problem solving skill level has difference with employer's expectation level.
- Student's domain knowledge level has difference with employer's expectation level.

DATA ANALYSIS AND INTERPRETATION

The study undergone with data analysis using tool rank correlation which is used to analyse the ranks of the skills is given below and t-test is used with the grouped variables to find out the difference between those variables for which the cross tabulation is mentioned below.

Rank Correlation

1. Difference between students rank in employability skills and employer's expectation rank in employability skills.

H0: Assume that $\rho = 0$

H1: Assume that $\rho \neq 0$

Table No: 2 rank correlation

VARIABLES	RANKING (STUDENTS)	RANKING (EMPLOYER)	d	d^2
Logical Thinking	7	8	-1	1
Domain Knowledge	3	5	-2	4
Problem Solving	5	6	-1	1
Flexibility	1	2	-1	1
Initiative	6	4	2	4
Written	4	3	1	1
Oral	2	1	1	1
Managing Events	8	7	1	1
Total			$\sum d = 0$	$\sum d^2 = 14$

$\sum d^2 = 30$; n = 8

$r_s = 1- (6\sum d^2/ n (n^2- 1))$

$r_s = 1- (6 * 14/ 8 (8^2 – 1))$

$r_s = 1 – (84/ 8 (63))$

$r_s = 1 – (180/ 504)$

$r_s = 1 – 0.17$

$r_s = 0.83$ (cal.value)

Tabulated value = 0.7143

Comparison: 0.83 > 0.7143

Interpretation

A spearman's rank correlation was run to determine the relationship between 8 employability skills for students ranking and employer expectation ranking. The calculated value is greater than tabulated value. This shows that there is a difference between student ranks and employer's ranks.

T-test

1. Checking difference between oral communication level of students and employer expectation level.

H0: $\mu_{student} = \mu_{employer}$

H1: $\mu_{student} \neq \mu_{employer}$ $\alpha = 0.05$

Table No: 3 T-test result for oral communication level of students and employer expectation level

Group Statistics

	group	N	Mean	Std. Deviation	Std. Error Mean
oral.stu.emp	oral stu	200	2.4900	1.03210	.07298
	oral emp	27	3.7407	1.02254	.19679

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
oral.stu.emp	Equal variances assumed	.296	.587	-5.917	225	.000	-1.25074	.21138	-1.66729	-.83419
	Equal variances not assumed			-5.959	33.561	.000	-1.25074	.20988	-1.67748	-.82400

Interpretation

In levene's test significant value ($p > 0.05$), interpret the top row of the results for t. The significant value is less than 0.05. This shows there is a significant difference between oral communication level of students and employer expectation.

2. Checking difference between written communication level of students and employer expectation level.

H0: $\mu_{student} = \mu_{employer}$

H1: $\mu_{student} \neq \mu_{employer}$ $\alpha = 0.05$

Table No: 4 T-test result for written communication level of students and employer expectation level.

Group Statistics

	group1	N	Mean	Std. Deviation	Std. Error Mean
written.stu.emp	written stu	200	2.6000	1.01248	.07159
	written emp	27	2.9259	.47442	.09130

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
written.stu.emp	Equal variances assumed	32.400	.000	-1.646	225	.101	-.32593	.19801	-.71611	.06426
	Equal variances not assumed			-2.809	64.612	.007	-.32593	.11602	-.55767	-.09418

Interpretation

In levene's test significant value ($p \leq 0.05$), interpret the bottom row of the results for t. The significant value is less than 0.05. This shows there is a significant difference between written communication level of students and employer expectation.

3. Checking difference between flexibility skill level of students and employer expectation level.

H0: $\mu_{student} = \mu_{employer}$

H1: $\mu_{student} \neq \mu_{employer}$ $\alpha = 0.05$

Table No: 5 T-test result for flexibility skill level of students and employer expectation level

Group Statistics

	group4	N	Mean	Std. Deviation	Std. Error Mean
flexible.stu.emp	flexible stu	200	2.4700	1.15576	.08172
	flexible emp	27	2.4444	1.21950	.23469

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
flexible.stu.emp	Equal variances assumed	.005	.944	.107	225	.915	.02556	.23851	-.44445	.49556
	Equal variances not assumed			.103	32.625	.919	.02556	.24851	-.48027	.53138

Interpretation

In levene's test significant value ($p > 0.05$), interpret the top row of the results for t. The significant value is greater than 0.05. This shows there is no significant difference between flexibility skill level of students and employer expectation.

4. Checking difference between problem solving skill level of students and employer expectation level.

H0: $\mu_{student} = \mu_{employer}$

H1: $\mu_{student} \neq \mu_{employer}$ $\alpha = 0.05$

Table No: 6 T-test result for solving skill level of students and employer expectation level.

Group Statistics

	group5	N	Mean	Std. Deviation	Std. Error Mean
problemsolving.stu.emp	problem solving stu	200	2.4050	1.16954	.08270
	problem solving emp	27	2.7037	.99285	.19107

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
problemsolving.stu.emp	Equal variances assumed	3.939	.048	-1.266	225	.207	-.29870	.23589	-.76354	.16613
	Equal variances not assumed			-1.435	36.486	.160	-.29870	.20820	-.72076	.12336

Interpretation

In levene's test significant value ($p \leq 0.05$), interpret the bottom row of the results for t. The significant value is greater than 0.05. This shows there is no significant difference between problem solving skill level of students and employer expectation.

5. Checking difference between domain knowledge level of students and employer expectation level.

H0: $\mu_{student} = \mu_{employer}$

H1: $\mu_{student} \neq \mu_{employer}$ $\alpha = 0.05$

Table No: 7 T-test result for between domain knowledge level of students and employer expectation level

Group Statistics

	group6	N	Mean	Std. Deviation	Std. Error Mean
domain.stu.emp	domain stu	200	2.3600	1.02256	.07231
	domain emp	27	2.7037	.60858	.11712

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
domain.stu.emp	Equal variances assumed	11.817	.001	-1.704	225	.090	-.34370	.20168	-.74113	.05372
	Equal variances not assumed			-2.497	48.672	.016	-.34370	.13764	-.62035	-.06705

Interpretation

In levene's test significant value ($p \leq 0.05$), interpret the bottom row of the results for t. The significant value is less than 0.05. This shows there is a significant difference between domain knowledge level of students and employer expectation.

SUGGESTIONS

The suggestions are made from the analysis and findings of the study and also the recommendations from the employer expectation and student level about the employability skills. The employability skills among engineering students have some skills are not good. The employer expectation must be satisfied in some skills, dissatisfied in some skills. The students are allocate time to develop employability skills and update new technology. The institutions are must conduct special classes for developing employability skills. It will improve the student, and they will get a good job in future. Give an importance to improve your soft skills and place the perfect job.

CONCLUSION

The study investigated and compared employability skills that employers expectation and engineering students. The findings shows that gap between students level of employability skill and employer expectation in employability skill, in some skills we have a gap (i.e. oral communication, written communication and domain knowledge). We improve these skills you get a job. In this study some studies are no aware in employability skills. The institutions are compulsory teach about the employability skills. The employer expectation level and student's level have small difference only; we will fulfill it they will got a job definitely.

The student must have an interest to learn new things about employability skills. Regularly searching employment opportunity through internet, newspaper, news, ect. The engineering must start learn about employability skills in first year, we get definitely get a good job in final year. It is most important thing in corporate world. In future you will decide your life. So, aware about yourself and change the negatives into positives, develop the softs skills and finally get an employment.

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