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Factors Affecting Employability of IT Undergraduates: An Employers Perception

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Abstract
The aim of the paper is to identify the factors that can affect the Employability score (ES) of the IT undergraduate students according to the employer's point of view. The Employability factors on which employability score will be measured are Academic Performance (AP), Aptitude Skills(AS),Technical Skills (TS), Communication Skills (CS), Projects (P), Internship(I) ,Extra-Curricular Activities(E) and Certifications(c) had been considered as the independent variables while Employability Score is considered as the single dependent variable. The data is analysed using Linear Regression to identify and correlate those factors with the Employability score. The researcher collected data from the point of view of employers of IT industries to make the results more justifiable. This study will help fresh IT undergraduate students in preparing and developing their required employability skills for entry level jobs while assisting the employers in recruiting suitable candidates with the required skills and performance.
The results after statistical analysis shows that AP, AS, CS, P, I, C have positive and significant influence on the Employability Score of IT undergraduates while TS and E have positive but insignificant influence over Employability Score.

Keywords: Employability score, Employability Skills, Undergraduate students, Innovative Skills, Linear Regression.

1. Introduction

To determine the value of Higher Education by the Governments and International rankings (Teichler, 2009), the employment rate of graduates is frequently considered as a Performance Indicator.So it is the responsibility of Higher Education Institutions to produce entrepreneurs and employable graduates who have dedication and innovative skills to serve the organization. To increase the employment rate of UG students, it is necessary to fill the gap between Academic Curriculum and Industry Expectations. For this, a study was conducted to identify the required factors for the IT undergraduates employability.We found seven employable factors after study of the existing literature and eligibility criteria of all national-multinational IT companies and analysed it. Following this step, we tried to correlate those factors with the Employability score (ES). We took the perceptions of employers of IT industries to make the results more justifiable to the readers and scholars.
To seek employment for UG students, there is a need to start developing employability skills along with the academic curriculum. After investigation, it reveals that four factors of Higher Education like Course Setting, Course teaching, Club activities, and Employment guidance has the most critical influence on

improving undergraduate students'employability(Yi-Cheng Zhang and Yang Zhang,2022).Higher Education Institutions conduct various activities to provide employability training and tried to enlightened students with generic and innovative skills. To recognize factors according to perceptions of IT employers, we conduct analysis by using Linear Regression method by pre-assuming seven employability factors and examine which factors are highly correlated and have significant influence on Employability score(ES).

2. Literature Review

2.1 Employability

Employability is a person's ability to obtain a job and become employed, maintain employment, and re-enter employment for various reasons, including factors affecting employability such as knowledge, skills, and attitudes (Hillage and Pollard, 1998; Harvey, 2001).
According to Confederation of British Industry (2009), Employability is a set of attributes, skills, and knowledge that all labor market participants should possess to ensure they have the capability of being effective in the workplace – to the benefit of themselves, their employer and the wider economy CBI(2009).
Employability is the ability to perform the job as per the demand of the industry or the employers and avail the new job opportunities available in the labour market (Meenakshi Dhingra, May 2019)
Employability skills are also known as Transferable skills because such skills could be applied in the various fields of work and are not specific to one particular job or field (Meenakshi Dhingra ,May 2019)

2.2 Employability score

Employability score is a tool that will clearly indicate if the undergraduates exhibits the positive work habits in the job market(Azeez Nureni , et al., ,2009).It also tells you how likely students meet employers expectations or what are chances of success in the job market at the current skill level(Dr.Manjunath D.R,2021)
Employability score is aggregate of General Aptitude Test, Communication skills(verbal+written), Presentation skills,subject knowledge(Technical Test) and HR interview(Dr.Manjunath D.R,2021)

2.3 Academic Performance(AP) and Employability Score(ES)

Academic Performance (AP) is generally indicated through Grade Point Average (GPA) or Cumulative Grade Point Average (CGPA) measured by various academic indicators such as class test, class assignments, tutorials, practical exams, presentation skills and semester exam results. Pinto and Ramalheira(2017) found that AP published through GPA is the key to lift up business graduates' employability. Almost similar findings were reported by Helena and Kena (2019) that AP along with participation in ECA results in higher rates of job suitability and employability skills for Chinese graduates. K. Sripath Roy,et al.,(2018) , Pothuganti Manvitha and Neelam Swaroopa (2019), Vinutha K (2020), C. Jayasree & K. K. Baseer (2018), Samrat Singh and Dr. Vikesh Kumar (2013), Siddu P. Algur,et al., (2016) proposes various advanced machine learning algorithm for a student's career prediction in which Academic Performance is considered as one of the important factor.Fenta,et al.,(2019) also identified that Undergraduates' initial employability has a positive relationship with CGPA, preferred field of study and internship practice.
On the contrary, Soon , et al., (2019) pointed out that AP is not a key factor to obtain and secure a job. AP would be beneficial if the undergraduates are working in jobs at the lower half of the salary distribution. Therefore, there are contrasting views regarding the influence of AP on ES. However, this study included AP as one of the factor of ES for undergraduates

H1. AP can positively and significantly influence on Employability Score for IT undergraduates

2.4 Aptitude Skills(AS) and Employability Score(ES)

Aptitude skills are the skills regarding Problem-solving, Analytical, Mathematical, Business Awareness, Logical Thinking, Visualizing and critical thinking skills.Enhancing aptitude skills shows a persons ability of Decision making capability, Problem solving ,critical thinking and learning capability.S. Celine, M. Maria Dominic, M. Savitha(2020), Remadevi O.T, Jeff Cummings and Thomas N. Janicki(2020) reveals that Aptitude skills is considered as one of the important factors in prediction of undergraduates employability.

H2. AS can positively and significantly influence on Employability Score for IT undergraduates

2.5 Technical Skills(TS) and Employability Score(ES)

Technical Skills are the skills regarding Basic Computer Knowledge, Subject Concept Knowledge and application of Technical Knowledge.IT industry employers recruit candidates who have basic necessary Technical skills which will reduce training cost after hiring. S. Celine, M. Maria Dominic, M. Savitha(2020), Remadevi O.T, Jeff Cummings and Thomas N. Janicki(2020) reveals that Technical skills(TS) is considered as one of the important factor in prediction of graduates employability.Mansour and Dean (2016) argue that employers require employees to have both Technical Skills as well as soft skills. Jayasingha and Suraweera (2020) found that Technical Skills such as IT skills can partially influence Overall Graduation Employability and have not reflected a significant impact on Overall Graduation Employability .Hossain & et al. (2020) identified that both soft skills and Technical Skills are positively related to employability.

H3. TS can positively and significantly influence on Employability Score for IT undergraduates

2.6 Communication Skills(CS) and Employability Score(ES)

Communication Skills are skills regarding Oral Communication , Written Communication , Reading, Listening, Presentation skills. Communication Skills refers to the ability to interact with others by sending and receiving messages through face to face, online or mail communication to convey intended meaning.In order to enhance working efficiency, effective communication and interaction is necessary to reduce time, effort and perception bias. We observed that IT industry employers recruit those undergraduates who have strong communication skills.Celine, M. Maria Dominic, M. Savitha(2020), Remadevi O.T, Jeff Cummings and Thomas N. Janicki(2020) reveals that communication skills is considered as one of the important factors in prediction of graduates employability. Shah and Srivastava (2014) on the factors affecting the employability skills of management students and revealed that four factors: analytical skills & self-understanding, general management & work culture, leadership & problem-solving ability and communication make a significant impact on employability skills of management graduates. A recent study conducted by Succi and Canovi (2020) in different European countries identified that soft skills including communication skills, interpersonal skills and problem-solving skills increase the likelihood of employability of the students/graduates.

H4. CS can positively and significantly influence on Employability Score for IT undergraduates

2.7 Projects(P) and Employability Score(ES)

A project is a temporary, planned and executed to achieve a specific, unique outcome within a defined timeframe and budget.The professional courses via BCA, BCS, Bsc(IT), BE and B.Tech in Computer Engineering have mini or major projects are involved in Academic Curriculum.All undergraduates are intended to complete their academic projects with hands on practice to solve real world problems. Georgy Petrov studies explores(2025) the practical application of project-based learning which examines how embedding employability skills such as problem-solving, communication, teamwork and critical thinking directly into the curriculum can help bridge gaps in academic preparation and career readiness.

H5. Projects can positively and significantly influence on Employability Score for IT undergraduates

2.8 Internships(I) and Employability Score(ES)

Internships refer to educational experiences that involve students actively participating in specific roles or professions, and present practical application and career-oriented learning opportunities. Internship programs serve as a bridge between academic knowledge and the practical realities of the workplace, offering students hands-on experience(Marwa Muhammad , et al.,(2024)).Internship help students to understand job task, work experience, understand theoretical curriculum, expand practical knowledge,help to improve self-confidence and maintain public relations. Participating in internships at undergraduate level will increase number of opportunities of effective,authentic and reflective experimental learning which merge theoretical knowledge with practical knowledge and apply it in order to find out solution for problem(Boahin, 2018; Bennett et al., 2020; Relleve, 2019; Virtanen & Tynjala, 2019).

H6. Internships can positively and significantly influence on Employability Score for IT undergraduates

2.9 Extra-Curricular Activities(E) and Employability Score(ES)

Higher education institutions organize various Extra-Curricular Activities along with curriculum.Most of the Extra Curricular activities like Workshops, Group Discussions, Presentations, debate competitions, Quiz Competitions and many more performed within group activity which depicts students teamwork and leadership skills.According to employers, the ability to take responsibility of assigned tasks by the group, respect for the thoughts and opinions of others in the group, exercise give and take to achieve group results, resolving and managing conflicts, and leadership skills were the most developed teamwork skills among graduating students.(Wise Mainga & Reuben M. Daniel et al.,2022)

H7. Extra-Curricular Activities can positively and significantly influence on Employability Score for IT undergraduates

2.10 Certifications(C) and Employability Score(ES)

Certifications are nothing but excellence of achievements. These courses are offered by organizations like Google, Microsoft, AWS, Cisco, CompTIA, IBM, and on platforms such as Coursera and Udemy. Various certification courses are available in the field of Foundational & Entry-Level IT, Networking, cloud computing, cyber security, data and programming and project management. Specialized certifications in specific fields provide direct success opportunities to students to get entry level jobs as well as sustain it. Employers give priority to those students who have global certification in specialized fields rather than those students who complete all interview/recruitment rounds successfully.

H8. Certification can positively and significantly influence on Employability Score for IT undergraduates

3. Research method

3.1 Collection of data

By using a survey questionnaire method, Primary data were collected for this study. A structured survey questionnaire was used to collect data from respondents using a random sampling method. Initially, questionnaires were distributed to the employers and HR professionals working as the recruitment and selection officers from IT job sectors. The analysis was made by using Linear Regression analysis.

3.2 Survey Instrument

This study selected 21 recruiting HR officers working in the IT sector. A structured questionnaire with 23 items was used to collect the data. This structured questionnaire with a five-point Likert scale was used for collecting the data from the respondents. Table 1 highlights the number of items for each independent variable and the dependent one.

Table1 Number of Items under each variable on the Survey Questionnaire

Sr.No.	Variables	No. of Items
1	Employability Score(Independent variable)	5
2	Academic Performance(Dependent variable)	3
3	Aptitude Skills(Dependent variable)	4
4	Technical Skills(Dependent variable)	3
5	Communication Skills(Dependent variable)	7
6	Projects(Dependent variable)	3
7	Internships(Dependent variable)	4
8	Certifications(Dependent variable)	3
Total Number of Items		32

4. Analysis and Interpretation

4.1 Demographic Characteristics: The Demographic Characteristics of various data collected from respondents about employability is shown in Table 2

Table 2 Demographic Characteristics

Sr.No.	Demographic Variables	Category	Arithmetic No.	(%)
1	Gender	Male	16	76
		Female	5	24
		Total(n)	21	100
2	Age range(In Year)	25-34	9	43
		35-44	4	19
		45 or more	8	38
		Total(n)	21	100
3	Educational Level	Graduate	8	38
		Post-Graduate	13	62
		Total(n)	21	100
4	Work Experience	5 or less	3	14
		6 to 10	5	24
		11 to 15	2	10
		16 or more	11	52
		Total(n)	21	100

Table 2 shows that 75% respondents are Male Candidates while the majority of them are between 25-34 years.

4.2 Linear Regression Analysis:

Table 3 Linear Regression Analysis

Regression Statistics								
Relationship	Hypothesis	Multiple R	R Square	Adjusted R Square	Corelation Values	N	*P-value*	Label
ES ← AP	H1	0.69019	0.476362	0.448802536	0.69019	21	0.00053476	Supported
ES ← AS	H2	0.455086	0.207103	0.165371788	0.455086	21	0.03818069	Supported
ES ← TS	H3	0.397885	0.158312	0.114013093	0.397885	21	0.07405349	Not Supported
ES ← CS	H4	0.42922	0.18423	0.14129456	0.42922	21	0.05217602	Supported
ES ← P	H5	0.792239	0.627642	0.608044099	0.792239	21	1.8645E-05	Supported
ES ← I	H6	0.525564	0.276218	0.23812373	0.525564	21	0.01441241	Supported
ES ← E	H7	0.3308	0.109428	0.062556286	0.3308	21	0.14300338	Not Supported
ES ← C	H8	0.653963	0.427667	0.397544331	0.653963	21	0.00130156	Supported

The result of Table 3 Linear Regression Analysis Shows that Academic Performance(AP) accounted for 48% of variance (Aprox.)R^2=0.48,CV=0.69,p value<0.05 on Employability Score(ES) so we accept research hypothesis H1. Aptitude Skills(AS) accounted for 21% of variance R^2=0.21,CV=0.45, p value<0.05 on Employability Score(ES) so we accept research hypothesis H2.Similarly Technical Skills(TS) accounted for 16% of variance R^2=0.16 ,CV=0.40 but p value>0.05 on Employability Score(ES) which not supported to research hypothesis H3.Again, Communication Skills(CS) accounted for 18% of variance R^2=0.18,CV=0.43,p value<0.05 on Employability Score(ES) so we accept research hypothesis H4. Now Projects(P) accounted for 63% of variance R^2=0.63,CV=0.79,p value<0.05 on Employability Score(ES) so we accept research hypothesis H5. Internships(I) accounted for 28% of variance R^2=0.28,CV=0.52,p value<0.05 on Employability Score(ES) so we accept research hypothesis H6. But, Extra-curricular activities(E) accounted for 11% of variance R^2=0.11,CV=0.33, p value>0.05 on Employability Score(ES) which not supported to research hypothesis H7. Again, Certifications(C) accounted for 65% of variance R^2=0.65,CV=0.65,p value<0.05 on Employability Score(ES) so we accept research hypothesis H8.

The result of the study revealed that among 8 Employability parameters, AP, AS, CS, P, I, C showed Positive and Significant influence on Employability Score (ES). Whereas TS and Extra Curricular Activities (E) shows Positive but Insignificant influence on Employability Score (ES) of Undergraduates

IT students.Hence we can say that HEI needs to focus on these Employability factors along with academics for better Employability.

5. Conclusion:

Employability is more important as per perspective of undergraduates, Higher Education Institutions and Employers /Recruiters of organization. So to get entry level jobs or for job sustainability, Employability score need to be maintain.To do this undergraduates and HEI need include and focus in order to bridge gap between Industry and academia by conducting/participating various employability related activities Workshops , Aptitude and Technical training programs, Certifications, Quiz competitions, Presentation competitions etc.

Finally, the IT undergraduates must be adaptive to all the latest technologies and skillsets required by the job and the changing employment scenario. Such skills not only make them competent and valuable but also guarantee them sustainable career paths as expected.

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