Assessing the Effectiveness of Training Programs on Students Job Opportunities with Reference to Select Engineering Colleges of Kurnool, Andhra Pradesh

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The present research investigates the impact of structured training programs on student's skills and employability opportunities through bridging the gap between academic learning and industry requirements. Even though India is known for producing a lot of graduates, there is still a noticeable skill gap that makes it harder for students to get employment in their fields. With a sample size of 389 respondents chosen by convenience sampling, the study uses a descriptive research approach. A structured questionnaire was used to gather the data, and secondary data was collected from academic sources.

A critical analysis and evaluation has been carried out through the parameters like; how different training approaches—such as industry-specific programs, Practical training, and technical training—improve students' employment prospects. It shows that Industry-specific training has the highest positive effect on Job opportunities, followed by the technical training and Practical training. These relationships are statistically significant (p < 0.005). Overall Industry-specific training, technical training and Practical training significantly contribute to the job opportunities.

Key words: Training programs, academic learning, practical training, industry-specific training, technical training, employability

INTRODUCTION

Higher education, especially in engineering colleges, plays a crucial role in preparing skilled professionals for the demands of a rapidly growing economy. These institutions focus on more than just academics, highlighting practical skills, innovation, and critical thinking to train students for the modern workforce. With advancements in technology like AI, machine learning, and data analytics, engineering colleges bridge the gap between education and industry; ensuring students are ready to meet real-world challenges. By offering opportunities to students from varied backgrounds, they not only enhance employability but also contribute to the socio-economic development of the nation.

The Current State of Education Sector in India
The education sector in India was estimated to be worth US$ 117 billion in FY20 and is expected to reach US$ 225 billion by FY25. India has over 250 million school-going students, more than any other country. India had 43.3 million students enrolled in higher education in 2021-22 with 22.6 million male and 20.7 million female students.

Figure-2: Market Size of Education sector in India
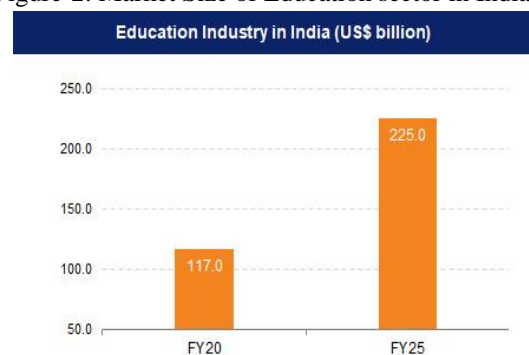
(Source:www.ibef.org)

Training programs are essential for improving employability by providing students with skills that align with industry needs. They help bridge the divide between classroom learning and real-world application, allowing students to put their knowledge into practice effectively.

Additionally, these programs promote lifelong learning by nurturing adaptability and critical

thinking—qualities that are indispensable in today's ever-changing job market. They also enhance students' confidence, preparing them for interviews and professional interactions with ease. Ultimately, training programs contribute to better placement outcomes, benefiting both students and educational institutions alike.

Training programs are organized learning initiatives created to give students the particular talents, skills, and knowledge needed to complete tasks successfully in their academic or professional endeavour's. These programs help students prepare for the demands of the workforce of the future by bridging the gap between classroom instruction and real-world application.

Training programs usually emphasize soft skills like leadership, cooperation, and communication in addition to technical abilities like programming, data analysis, or mechanical operations. They are taught using a variety of techniques, including as seminars, workshops, practical sessions, internships, and online courses. To guarantee their applicability to the demands of the labour market today, industry experts are frequently consulted. By preparing them for the workforce, boosting their self-esteem, and matching their skills to industry demands, these programs improve students' employability. In the end, training programs give students a competitive advantage in the labour market and facilitate a smooth transition into the workforce.

Various important factors have led to the introduction of training programs in colleges.

First, employers now expect graduates to have not just technical knowledge but also vital soft skills such as effective communication and teamwork.

Second, the increasing gap between what academic programs teach and what industries require has made these programs essential.

Third, globalization and growing competition have urged colleges to focus on preparing students to be job ready. Additionally, the rise of advanced technologies like AI, IoT, and data analytics has underscored the importance of technical training.

Finally, government policies and accreditation frameworks, including those under NEP 2020, have prioritized skill development as a critical area of focus.

REVIEW OF LITERATURE

Rashmi Thakur, et al., (2024)In their study entitled "*Bridging Academia and Industry: A Study on the Skill Development Effects of Internships and On-The-Job Training Programs"*-This research paper explores the crucial role of internships and on-the-job training programs in enhancing students' skill development, effectively bridging the gap between academic learning and industry requirements. The study adopts a comprehensive approach, integrating both quantitative and qualitative analyses to examine the diverse impacts of these experiential learning opportunities on students' skill sets. By analysing the experiences and perspectives of both students and industry professionals, the paper highlights the key factors that contribute to skill enhancement during internships and on-the-job training.

S.K. Dash and S.K. Mallick (2023*)* In their Research title *"Empowering Engineering Students Through Employability Skills"*-A professional course like engineering aims to maximize student placements through campus interviews. This article highlights the significance of employability skills and emphasizes the need for students to recognize and refine their existing abilities. It begins by addressing the gap between academic programs for engineering students and the skill requirements of the industry. The discussion then presents a list of essential employability skills from an engineering student's perspective and explores ways to develop these skills within a campus environment. The author concludes that combining strong employability skills with an engineering degree enhances students' readiness to meet employers' high expectations.

Thompson (2023)- In their research title *Resilience and Adaptability in Engineering Graduates* -This article explores the importance of resilience and adaptability as critical soft skills for engineering graduates facing a volatile job market. It emphasizes that graduates who demonstrated these qualities during their education were better equipped to handle challenges and changes in their work environments. The findings suggest that fostering these traits in students can improve their long-term career success.

Patel and Reddy (2023) In their study entitled *Collaboration Between Academia and Industry: Enhancing Employability*- The study explores the positive outcomes of strong partnerships between engineering colleges and industry stakeholders. It reveals that institutions with robust industry connections provide internships and real-world experiences that significantly boost students' employability. These collaborations not only bridge

the gap between theoretical knowledge and practical application but also facilitate networking opportunities that can lead to job offers.

Wang and Gupta (2022) In their research title *Employers' Perspective on Soft Skills in Engineering Education*- This research highlights that the inclusion of soft skills training in engineering curricula is a critical factor in the employment decision-making process for employers. It argues that candidates who demonstrate strong communication and teamwork abilities are more attractive to potential employers, underscoring the need for educational programs to prioritize these skills alongside technical training.

Johnson (2022) In their Research article *Adapting Engineering Education to Emerging Technologies*- This article stresses the need for engineering programs to evolve in response to the rapid advancement of technology. It highlights that curriculum incorporating advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT), and data analytics are more effective in preparing students for future job markets. The research calls for adaptive training programs that reflect current industry trends, ensuring graduates possess relevant and up-to-date skills.

Pramod K. Shahabadkar(2021)- In their study entitled *Enhancing Employability Skills and Placements in Technical Institutes: A Case Study* - This study focuses on improving employability skills and placements in a technical institute using a SWOC (Strengths, Weaknesses, Opportunities, and Challenges) analysis. A survey was conducted among 1,087 students using Google Forms to gather their opinions on different aspects like infrastructure, staff, teaching methods, training programs, and policies. Based on the feedback, initiatives were introduced to address weaknesses and explore new opportunities. As a result, placements increased by 36.03%, the average salary package grew by 2.31%, the highest package rose by 40%, and industry participation improved by 35%. Recruiters also noticed a 10-15% improvement in students' leadership, behavior, and sincerity. However, the study only focuses on training and placement activities, and a broader analysis is needed to cover other areas. This research highlights that SWOC analysis can be a useful tool for institutions to enhance student employability and placements, and similar methods can be applied in other colleges with suitable modifications.

P. Kumar and R. Kumar (2019)In their research title *"Assessing the Importance of Employability Skills Training on Engineering Students' Career Readiness"*- Has made an endeavour to investigate the impact of employability skills training on the career preparation of engineering students, finding that such training significantly enhances job readiness and employment prospects.

Christine Winberg (et.al., 2017)In their article titled *"Developing employability in engineering education: a systematic review of the literature"*- The study reviewed research from 2007–2017 to identify how engineering education can better prepare students for 21st-century jobs. It focused on the balance between engineering knowledge and professional skills, showing that both are essential for employability. Engineering knowledge helps solve technical problems, while professional skills like teamwork are needed to work effectively in different contexts. The study highlights that combining these skills is key to understanding engineering principles and addressing real-world challenges.

Chandrasekhar Reddy T et.al., (2017) Were carried out a research study entitled "Best Practices to improve and enhance technical skills for the engineering graduates by Academia and industry Association."- The paper focuses on improving the technical skills of engineering graduates through collaboration between industry and academia using proven best practices. It highlights the challenge that only 20–25% of engineering students are employable due to low industry awareness and a lack of knowledge about current trends and expectations. To address this, the study suggests providing training for students.

STATEMENT OF THE PROBLEM

Today, Indian Higher Education sector is one of the leading and promising sectors. Despite of heavy competition in the world education sector; it created its own renowned recognition for Learning, Skill development and Student transformation.

Although India is producing a huge number of graduates like; Doctors, Engineers, Lawyers, and IT Professionals in the World, still suffering from Industry required skills. This skill gap between Academic and Industry is showing an impact on careers of graduates in getting right job in their core areas.

Various important factors have led to the introduction of training programs in colleges. First, employers now expect graduates to have not just technical knowledge but also vital soft skills such as effective communication and teamwork. Second, the increasing gap between what academic programs teach and what industries require has made these programs essential. Third, globalization and growing competition have urged colleges to focus on preparing students to be job ready. Additionally, the rise of advanced technologies like AI, IoT, and data analytics has underscored the importance of technical training.

Hence, the specific aspects of the study are:
1. What is training programs in engineering colleges?
2. What are the training programs provided by the colleges?
3. What is the impact of training programs on job opportunities?

NEED AND SIGNIFICANCE OF THE STUDY

Criteria for Selection of Topic: India produces many graduates like doctors, engineers, lawyers, and IT professionals, but they often lack the skills needed by industries. This gap between education and industry requirements is making it hard for graduates to get jobs in their fields.
In today's competitive job market, the role of training programs in shaping students' careers has become more critical than ever. The topic was chosen because it focuses on understanding the impact of training programs in enhancing job opportunities for engineering students in Kurnool.

Criteria for Selection of Region: Kurnool was selected as the region of study because it is known as an educational hub in Andhra Pradesh, with many engineering colleges serving a large number of students. The region has a diverse student population from various socio-economic backgrounds, providing valuable data for analysis. Its proximity and accessibility make it convenient for conducting research and interacting with students.

SCOPE OF THE STUDY

The present research is limited to discovering the relation between Students required skills and industry desired skills. Further, the skill gap is going to be filled by providing various training in functional areas especially in Engineering education.
Moreover, the current study is confined to only select engineering colleges of Kurnool i.e., G. Pullaiah College of Engineering and Technology i.e., (Autonomous) and Ravindra College of Engineering for Women (Autonomous), Kurnool.
Functionally, it is confined to identifying the types of Training programs and their impact on job opportunities for students in select engineering colleges of Kurnool.
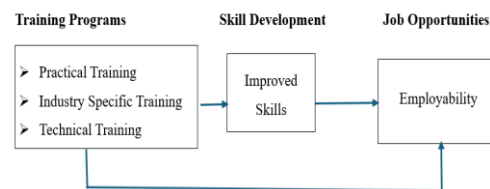

Figure-2: Proposed Model for Training Programs for Students Job Opportunities. Developed by researcher

OBJECTIVES OF THE STUDY

1. To study the concept of training program, skill development and job opportunities,
2. To examine the profiles of select Engineering Colleges and Engineering Students in the Kurnool region,
3. To identify various training programs offered by Engineering Colleges to the students,
4. To analyze the impact of training programs on skill development and Job opportunities.

Based on the above objectives the following hypotheses are formulated:
H_1: There is a impact of practical training on job opportunities
H_2: There is a impact of Industry-specific training programs on job opportunities.
H_3: There is a impact of technical training programs on job opportunities.

RESEARCH METHODOLOGY

Training programs are essential for improving employability by providing students with skills that align with industry needs. They help bridge the divide between classroom learning and real-world application, allowing students to put their knowledge into practice effectively.

The structured questionnaire was used to obtain the data. Information on constructs and their components was included in the created instrument. The questionnaire was divided into two sections.

The information pertaining to the students' respondents' age, gender, branch, and year of were the main focus of the first section. The model variables are measured in the second section of the questionnaire. One mediating variable, three independent variables, and one dependent were present.

Sample Size

The present has opted 389valid responses. The select respondents were the students from G. Pullaiah college of Engineering and Technology (Autonomous), and Ravindra College of Engineering for Women (Autonomous).

Measurement

The demographic traits were measured by using categorical data in the primary section. A 5-point Likert scale was used to measure the model variables. The data analysis tools utilized is SPSS version 27 version.

Data Analysis and Results

The reliability of 389 respondents was assessed using the questionnaire. The Cronbach's Alpha value is 0.872 which is good and significant.

Table-1: Reliability and Validity

Case Processing Summary			
		N	%
Cases	Valid	389	100.0
	Excluded^a	0	.0
	Total	389	100.0
a			

Reliability Statistics	
Cronbach's Alpha	N of Items
.872	22

Source: Primary Data Analysis.

Table-2: Demographic Details of the Respondents

Demographic Aspects		Details of the Respondents	
		No. of Respondents	Percentage (%)
Age	18-20 years	132	33.9
	19-21 years	140	36.0
	21-23	116	29.8
	23-25 years	1	.3
	Total	389	100.0
Gender	Male	105	27.0
	Female	284	73.0
	Total	389	100
Branch of the student	CE	13	3.3
	CSE	158	40.6
	CAI	73	18.8
	ECE	107	27.5
	EEE	33	8.5
	Mechanical	5	1.3
	Total	389	100
Year of the study	1st year	48	12.3
	2nd year	29	7.5
	3rd year	131	33.7
	4th year	181	46.5
	Total	389	100

Source: Primary Data Analysis

Table-3: Correlation between Practical Training and Job opportunities

Correlations			
		Practical training	Job Opportunities
Practical training	Pearson Correlation	1	.611**
	Sig. (2-tailed)		.000
	N	389	389
Job Opportunities	Pearson Correlation	.611**	1
	Sig. (2-tailed)	.000	
	N	389	389
**. Correlation is significant at the 0.01 level (2-tailed).			

Table-4: Correlation between Industry-Specific Training and Job opportunities

Correlations			
		Industry-specific training	Job Opportunities
Industry-specific training	Pearson Correlation	1	.653**
	Sig. (2-tailed)		.000
	N	389	389
Job Opportunities	Pearson Correlation	.653**	1

	Sig. (2-tailed)	.000	
	N	389	389
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Primary Data Analysis.

Table-5: Correlation between Technical Training and Job Opportunities

Correlations		Technical training	Job Opportunities
Technical training	Pearson Correlation	1	.635**
	Sig. (2-tailed)		.000
	N	389	389
Job Opportunities	Pearson Correlation	.635**	1
	Sig. (2-tailed)	.000	
	N	389	389
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Primary Data Analysis.

REGRESSION ANALYSIS

Table: 6

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.720a	.518	.515	.44410
a. Predictors: (Constant), Technical training, Industry-specific training, Practical training				

The above table depicts the Model Summary of the regression analysis. The correlation coefficient R = 0.720, this shows there is a strong positive relationship between Job Opportunities and the independent variables. And R^2 = 0.518, i.e. 51.8% of the variation in Job Opportunities is explained by the independent variables in the model. The remaining 48.2% is unexplained, meaning there are other factors affecting Job Opportunities that are not included in the model. Adjusted R^2 = 0.515, i.e. 51.5% of the variation in Job opportunities is explained by the model after adjusting for the number of predictors. Since Adjusted R^2 (51.5%) is close to R^2 (51.8%), it means that most of the independent variables included in the model are useful and not just adding noise. SE = 0.44410, which is small indicating that model is accurate.

Table: 7

ANOVAa					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	81.754	3	27.251	138.173	.000b
Residual	75.932	385	.197		
Total	157.685	388			
a. Dependent Variable: Job Opportunities					
b. Predictors: (Constant), Technical training, Industry-specific training, Practical training					

Interpretation:

The ANOVA table shows statistically significant, $F(3, 385) = 131.173$, $p < .001$, indicating that the independent variables collectively predict Job Opportunities. The model explained a substantial proportion of the variance in Job Opportunities (R^2 = 81.754/ 157.685 = 0.518, approximately 51.8.%), suggesting a strong relationship between the predictors and the dependent variable. The F-statistics (138.173) is high, and the significance level is less than 0.005, meaning the model is a good fit.

Table: 8

Coefficients		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.084	.156		6.940	.000
	Practical training	.199	.050	.212	4.028	.000
	Industry-specific training	.311	.048	.314	6.426	.000
	Technical training	.224	.043	.291	5.161	.000
a. Dependent Variable: Job Opportunities						

CONCLUSION

The regression analysis indicates that Job opportunities is significantly influenced by the Practical training, Industry-specific training and technical training

The regression model can be expressed as:

Job Opportunities = 1.084 + 0.199(Practical Training) + 0.311(Industry-specific training) + 0.224(Technical training)

It shows that Industry-specific training has the highest positive effect on Job opportunities, with a coefficient of 0.311, followed by the technical

training (0.224) and Practical training (0.199). These relationships are statistically significant (p < 0.005). Among the standardized coefficients, the industry-specific training has the strongest influence (Beta = 0.314), emphasizing its critical role. Overall Industry-specific training, technical training and Practical training significantly contribute to the job opportunities.

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