

# **Bridging Academia and Industry: Success Stories of Collaborative Innovation**

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**Abstract:** Today industries are having high expectations from the students seeking employment. These expectations are due to the increasing new technological trends, information era, tough competitions in the market, extreme challenges for survival of companies, changing social demands, increasing cultural diversity, government interference, etc. In fact LPG that is Liberalization, Privatization and Globalization has forced the far flung globe to be a modern village in itself. In such a changing environment companies are looking onto academic institutions to get highly talented or skilled students who can help the companies in scaling up their profits and achieve the objectives smoothly. The researcher has tried to present the present and possible future relationship between the industry and academic institutions. Also the researcher has highlighted the success stories of collaborative learning through examples. Further the researcher has also prepared a model syllabus for bridging academia and industry. This model and the efforts put by the researcher may be fruitful in bridging academia and industry together in future.

**Key Words:** Cultural diversity, Collaborative Innovation, Bridging, Liberalization, Privatization and Globalization

## 1.0 Introduction to Academia and Industry Growth

The evolution of education system in India started from Vedic period with oral traditions in gurukuls, followed by Nalanda and Taxila as learning centres of ancient universities. Then the Medieval era got influenced by the Islamic for Persian and Arabic teachings followed by Colonial rule that influenced English by British. The Independence era of 1947 focused the literacy and elementary education. The modern era was influenced by IITs and IIMs which brought revolution in the field of education. Today the present education system influences the blending of traditional and modern approaches of teaching-learning.

The industrial growth today we experience has passed through several phases starting from phase I known as abortive phase in 1818, phase II known as incipient phase, phase III as premature phase, phase IV as early mature phase along with 2<sup>nd</sup> five year plan, phase V as mature phase and all the five year plans. The industrial revolution can be traced from the beginning of the cottage industry till the present day Information Technology & Service Sector based industries. These phases brought tremendous impact on the economy and the education system.

The growth interface of both academia and industrial revolution to a greater extent has collaborated with each other and had always tried to be more development oriented benefiting the society at large. Today in 21<sup>st</sup> century to meet with the growing pace of change, technology, information era, global competitions, global challenges, etc we need to analyze and bridge the academic and industrial gap in a more innovative way which can at the same time retain the values, culture and ethics in the society among human kind.

## 2.0 Literature Review

**According to NASSCOM report** core skill set required by the industry will change fast and newer skills like creative thinking, higher level problem solving, interpersonal skills, innovation, decision making will be in great demand. However, “Skill-based education is somewhat lacking in all the higher education fields in India and management is no different. The focus of management institutes need to shift from theoretical knowledge to skill based education with a more practical and dynamic approach,” says Roshni Chakrabarty noting recent trends in MBA education. Therefore, besides imparting the core or technical knowledge, academia should also

try to focus on the softer and behavioral aspects such as interpersonal skills, leadership capability, attitude, communication skills, team spirit, etc.

**According to Prof. Mayank Mathur** a Ph.D. holder from Indian Institute of Management, Lucknow and MBA from Indian Institute of Management, Bangalore, having 20 years of experience in the technology industry, in the Data analytics area with various small, medium and large organizations across the globe, has worked with organizations like Oracle, Cisco and Success factors, as Manager technology operations, and also has been the Director of Data Technology and Operations in the companies like SAP, Bizviz Technologies, and AutoGrid Bangalore, he has been the Co-Founder and Chief Technology Officer in his own e-Commerce start-up, Cellula Bangalore and holds an Advisory role in the board for Cellula has described the reasons for the gap between the academia and industry due to the following reasons; such as Growing skill gap, Stiff competition, Expectations of the industry, Outdated Syllabus, Migration of students, etc.

**According to an article published in Royal Academy of Engineering** the engineering colleges in sub-Saharan Africa (SSA) faces continues gap between academia and industry leading to the disconnect between curriculum of engineering and the needs of the industry. The gap was realized due to lack of funding, political, cultural, limited professional networks and organizational factors.

**According to Lennart Bütha, Vikrant Bhakarb , Nitesh Sihagb , Gerrit Posselta , Stefan Böhmea , Kuldip Singh Sangwanb , Christoph Herrmanna** in their article 'Bridging the qualification gap between academia and industry in India' published in ELSEVIER, ScienceDirect, 7th conference proceedings highlighted that mismatch of academia education and industry requirements. The research work has discussed the reasons for the present gap and has presented the approaches to bridge the gap.

**According to Maj. Gen. V. S. Ranade**, in their article, 'Bridging The Gap Between Academia And Industry To Focus On Proactive And Capable Workforce' highlighted that students must possess practical skills, industry-relevant knowledge and exposure to real-world situations.

## **2.1 Present Relationship between Academia and Industry**

The recent statistics says that India is having world's largest tertiary-age population and second largest graduate talent globally. India's rapid growth requires 250 million workforce by 2030 and India will potentially emerge as a global supplier of skilled manpower. There is another bitter truth that a major segment of graduates remain unemployable according to 'National Employability Report' 2016. The study consisted of more than 1,50,000 engineering students who graduated in 2015 from over 650 colleges, 80% of them were unemployable and only 3% had suitable skills to be employed in software or product market.

Some of the gaps between academia and industry are due to the following reasons: Curriculum is not prepared according to the industrial requirements, curriculum is more over theory based rather than practical based, intern students do not get working environment and practical exposure from the companies, faculties do not have industrial knowledge as input for students, unrealistic expectations of students from the industry, etc.

## **2.2 Factors responsible for the gap between Academia and Industry at present scenario**

1. Curriculum Gap
2. Internship Gap
3. Faculty Gap
4. Skill Gap
5. University-Industry Interaction Gap
6. Expectations Gap

## **2.3 Success Stories Bridging the Academia and Industry Gap**

1. Tata Technologies and the private university collaborated to provide industry-oriented, innovation-led simulated competency centers; wherein the training is provided by leading experts from the industry to produce Industry ready engineers. They recognized the industry-academia gap and restructured their curriculum by adopting the next generation of technologies and tools to train their students to bridge the gap. Tata Technologies leveraged its expertise to build a world-class competency centre to offer B. Tech, Automobile Engineering and B. Tech, Aeronautical Engineering. Students were trained by industry

subject matter experts in industry-simulated environments. This engagement helped industries to get ready engineers and save time and money on training.

2. The Government of Karnataka signed a Memorandum of Agreement (MoA) with Tata Technologies for a period of 10 years to upgrade and modernize 150 government-owned ITIs across Karnataka. It developed 6 Long Term Courses and 23 Short Term Courses approved by the Directorate General of Training (DGT) and the National Council for Vocational Education and Training (NCVET), respectively, for up skilling, cross-skilling, and reskilling of professionals. It also conducted ITI staff training through Train the Trainer program and assigned a total of 300 Subject Matter Experts (SMEs) having two SMEs to each ITI for technical assistance. For the academic year 2022-23 ITIs have been modernized with 9,407 students enrolled in 6 different trades, while 4,670 students are pursuing various short-term courses.
3. In order to provide the best industrial exposure to the young talent on technical ground, Jyoti has initiated several programs that intend to bridge the gap between academia and industries. Considering the country-wide need for skill up gradation, the company invites students of various engineering institutes from all over India to conduct their academic projects and in-plant training to gain practical knowledge, and contribute to the movement of technical innovations in India. Through in-plant training, a balanced schedule and focused guidance, the company offers exposure to the activities that make the students ready to work in an industrial environment with hands-on skills. This initiative has boosted the confidence level of many young engineering students to serve in the actual industrial field. To address the challenge of maintaining ultra-modern technical laboratories in colleges, the company has established full-fledged learning labs in some engineering colleges. These labs facilitate on-campus leaning opportunity for engineering students during their academic studies. This drive has provided students with the best in-house platform for learning, saving time to be future ready for the industry. Jyoti has already built a dedicated Tech Center to exhibit various engineering capabilities and to train different groups for operating and programming modern CNC machines. The company's Tech Center is a part of Pradhan Mantri Kaushalya Vikas Yojana (PMKVY). Under PMKVY, students with technical back-ground can opt for about 500 hours of training sessions that provide high level of industrial exposure to them. With special selection criteria, many students are taken for special learning programs of

different divisions of the company – along with their regular academic schedule. Many students from these batches are offered work opportunity before they complete their academics. The company initiates special training programs for women with or without technical background. The company has focused training schedules for women to impart them knowledge on CNC operations and programming. Post training, 30 women candidates were absorbed as CNC machine operators in the company. This has created a strong impact on the conventional industrial employment pattern in India.

#### **2.4 Model for bridging the gap between Academia and Industry**

<b>Semester-I</b>	<b>Semester -II</b>	<b>Semester -III</b>	<b>Semester -IV</b>
Visits by students to Corporate organization	Small Reports based on the first visit	Small projects from Corporate organization	Competitions based on projects completed
<b>Semester -V</b>	<b>Semester -VI</b>	<b>Semester -VII</b>	<b>Semester -VIII</b>
15 days internship based on different area of interest of the student	Reports on internship	Competitions on large scale based on internship reports	One month internship (period of internship can be extended)

Source: Jyoti CNC Automation Ltd.

#### **2.5 Understanding the Future Relationship between Academia and Industry**

There can be several ways to bridge the academia and industry gap. These are as under:

1. Memorandum of Understanding between academics and industries.
2. Preparing the curriculum involving the industrial experts.
3. Visits of educators to the industry to understand expectations of industries.
4. Each semester industrial visits to provide interactions and exposure to the students.
5. Practice based learning solving real life problems.
6. Students must be able to learn, unlearn and relearn and adapt quickly according to the changing business environment.
7. Project based learning from first semester that solves real life problems of the corporate organizations.

8. Involving students into the corporate organizations for various areas such as decision making, human resource management, marketing management, financial management, etc.
9. Skill based education
10. Training provided by leading experts from the industry to produce Industry ready engineers.
11. Industry centers or labs equipped with advanced software, hardware and machines for providing hands-on experience to students.
12. Innovative internship programs
13. Faculties taking small projects from industry. This will make them aware about the recent trends and align them with the industrial currents needs.

### **3.0 Research Methodology**

#### **3.1 Research Problem**

Today in 21<sup>st</sup> century to meet with the growing phase of changes such as technological changes, information era, global competitions, global challenges, etc we need to analyze and bridge the academic and industrial gap in a more innovative way which can at the same time retain the values, culture and ethics in the society among human kind. The companies are thus looking onto academic institutions to get highly talented or skilled students who can help the companies in scaling up their profits and achieve the objectives smoothly by retaining the values, culture and ethics in the society among human kind.

#### **3.1 Objectives of the Study**

1. To know the present relationship between academia and industry.
2. To highlight the success stories of collaborative learning.
3. To prepare a model for bridging academia and industry.
4. To understand the future relationship between academia and industry.

### **3.2 Significance of the Study**

The research will be useful for bridging the gap between academia and industry. The research highlights how in present the academia and industry can together collaborate and be useful for each other.

### **3.3 Research Design**

This is a qualitative research based on secondary sources. This research gives insights about the practices to be adopted for bridging the academia and industry gap.

### **3.4 Method of Data Collection**

The data is collected from secondary sources that include books, magazine, journals, online research articles, websites, etc. on. Bridging the academia and industry gap.

### **4.0 Further Scope of the Research**

In future a model can be prepared based on different academic disciplines looking into their relationship with corporate world and their expectations.

### **5.0 Research Findings and Conclusion**

It can be concluded that the academia and industry gap exists. The corporate organizations expectations are not exactly matched by the academia. The technical skills, soft skills, talents, aptitude, behavior, etc. are not found in the candidates searching for job. And also the candidates are also not able to make themselves the best fit into the corporate world with good training and inputs. After studying several literature reviews it has been found that the gap between the two is because of many reasons such as Curriculum Gap, Internship Gap, Faculty Gap, Skill Gap, University-Industry Interaction Gap, etc.

However the gap between the two can be bridged by the efforts from both the sides. True involvement of industries with academia like memorandum of association, inviting the industrial experts for curriculum designing, innovative internship for students, industrial visits for faculty and students, projects for students in solving real-life problems of corporate organizations, etc will definitely help to bridge the academia and industry gap.



The research has presented the relationship between academia and industry, has highlighted the success stories of collaborative learning, prepared a model for bridging the academia and industry gap and has identified how the future relationship between academia and industry can be made more strong and useful for both the parties. Thus all the objectives stated in the research methodology have been discussed and fulfilled in the research paper.

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