UNLOCKING THE FUTURE POTENTIAL THROUGH THE SYNERGY BETWEEN EDUCATION AND INDUSTRY

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The fundamental distinctions between education and industry make this seemingly straight forward relationship less effective. Universities want to add to the body of knowledge while industries want to add to their profits. As a result, academics and business become two sides of a river that flow separately. Building connections between the two could benefit universities and businesses alike.

- By Dr. Susmita Bose Sarkar

According to Organisation for Economic Co-operation and Development (OECD), approximately two thirds of research and development (R&D) in science and technology studies is carried out by industry. Universities conduct the remaining 20% of R&D work, and the government (Organisation) does the remaining 10%. Based on these statistical data, it can be said that industry-academia collaboration is increasing. Research conducted in the industry facilitates the easy transfer of knowledge because universities can access real-time data, removing the contradiction that results from the distinctions in characteristics between the two.

Background

In addition to suggesting that students engage in exchanging their perspectives within their learning environments, this article explores methods to enhance mutual understanding between students and researchers to foster more effective collaboration. One aspect discussed is the improvement of shared empathy (Winter *et al.* 2020). For instance, although students are instructed in advanced programming languages, they often utilize them for repetitive tasks unrelated to industry demands, such as creating matrix multiplication programs or developing web-based library management systems. While they grasp the syntax of these languages, they lack understanding of their appropriate application domains. *Upon graduating and entering the workforce, students may struggle to thrive unless they receive specialized training tailored to specific industries such as banking or IT* (Hoffman, 2011). Students continue to struggle with adapting to real-world challenges, highlighting the pressing need to offer them practical exposure to industry alongside their academic instruction. This approach can help mitigate the risks of facing difficulties due to a lack of awareness about industry advancements. *It's crucial for educational institutions to prioritize instilling advanced skills in students, recognizing that not all valuable knowledge can be found in textbooks or traditional classrooms.* Experience plays a pivotal role in acquiring both knowledge and skills (Button *et al.* 2020). Equipping students with these assets enables them to better navigate the demands and complexities of collaborative processes within their future careers.

Observations

It has been noted that *students often acquire a significant portion of their knowledge in areas such as testing verification, quality assurance, project management, ethics and professionalism, technical writing, and leadership skills while on the job.* These crucial topics should therefore be integrated into their academic

curriculum. To foster collaboration between academia and industry, it is essential to *incentivize both parties to engage in mutual cooperation for their respective advantages* (Nsanzumuhire & Groot, 2020). The curricula should be designed in such a way that all key challenges faced by the industry are addressed, ensuring that the content benefits both academia and practitioners. Incorporating essential industrial practices into academic programs is vital for students to enhance their skill sets.

Numerous training institutions offer specialized industry-focused education, but they often come with a hefty price tag, making them financially inaccessible for many students. Moreover, industrial research remains undisclosed until it serves the interests of the businesses involved. Companies view their interaction with academic institutions primarily as a means to secure potential hires through campus placements or to directly train students during internships, yielding only intangible benefits. To overcome this, one solution is to *encourage institutions to hire industry professionals as faculty members*. Establishing a meaningful connection between academia and industry hinges on addressing various issues such as the relevance of research, commitment to training, real-world problem-solving, communication gaps, contractual and privacy concerns (Ajani *et al.* 2024). The success of student projects in collaboration with industry relies on fostering an ecosystem of academia-industry liaison involving clients, students, and faculty.

Collaborative Training

Collaborative learning is crucial for students, as it fosters active, social, contextual, engaging, and student-driven educational experiences, which are proven to deepen learning (Guo *et al.* 2020). Benefits of collaborative learning encompass the development of critical thinking, communication, self-management, and leadership skills. University-industry collaboration (UIC) is a mutually beneficial relationship driven by knowledge and resource exchange, leading to innovation and technological advancement (Kamal *et al.* 2023; Rybnicek & Königsgruber, 2019). Through technical support and program delivery, industries offer structured training or assistance to students, ranging from updated work methods to management development.

Industry-Academia Collaboration: Importance and Benefits

Industry and education are interdependent for national growth (Carl, 2009). *The education system should prepare students for future careers by closely collaborating with industries to align curriculum and teaching methods with industry needs*. Without this collaboration, graduates may lack the necessary skills for employment, as employers often perceive college graduates as unskilled or unprepared for the workforce. When industry and education collaborate, research and development efforts can address industry requirements effectively. Industry-academia collaboration is essential for preparing students for the corporate world, aligning their skills with industry expectations (Zeidan and Bishnoi, 2020). This partnership fosters skill development, innovation, and research advancement, benefiting both parties. It enhances students' practical understanding, facilitates job opportunities, and promotes long-term employment. Universities gain access to resources, funding, and real-world projects, enhancing their curriculum and employability of

graduates. This collaboration is pivotal for addressing future challenges, especially in areas like AI and healthcare. The COVID-19 pandemic highlighted the effectiveness of such partnerships, enabling rapid vaccine development through academic-industry cooperation. As we advance into a new technological era, sustained collaboration between academia, industry, and government is crucial for innovation and societal progress.

Gap between Academia and Industry

The prevailing differences between education and industry have received special attention, which hinders their ability to function as a cohesive unit. India has an enormous number of educational institutions, which implies that thousands of graduates will graduate each year and search for employment. However, the real question is, are they well prepared to fill positions or responsibilities when given the opportunities. The answer is no. According to a recent study, *there is a discrepancy between the knowledge and skills acquired through formal education and the knowledge required at work* (Daka *et al.* 2023). It's interesting to note that graduates of postsecondary institutions face a problem with inadequate knowledge and the students themselves report feeling underprepared for the workforce. According to some researches on this issue states that, even these graduates feel that their working-life skills are insufficient because they acquire the necessary skills at work rather than through their education.

How to Bridge the Gap

The nation's educational institutions must find solutions to the issues of graduates who are not prepared for the real world when they leave the university premises. *Academia-Industry Collaboration Plan (AICP) needs to design model by incorporating the knowledge that has already been established in the study* (Ahmed *et al.* 2022). The model should consist of tools, methods, and processes, with a roadmap for establishing academic-industry collaboration. It includes all of the necessary process models along with a set of procedures designed to reduce the organisational complexity of the process of collaborating between industry and academia. The goal of methods or approaches is to carry out those procedures in an efficient manner. Lastly, *suitable instruments should be chosen to incorporate possible collaboration improvements that lead to innovation*. Building connection between academia and industry benefits not just university and industry, but the entire country as well (Singh & Singh, 2005). This relationship, like all relationships, needs careful consideration and understanding to grow. It also has a number of problems that must be comprehended and fixed. It is challenging to build a satisfying relationship in a one-way street like this one. The fact that tuition fees from students or government grants in the case of the public sector are the only sources of funding for academia is another problem.

Graduates are frequently produced in excess of demand or insufficient to meet the industry's constantly evolving requirements (Tran *et al.* 2022). Academics and industry alike become frustrated by this. While industry anticipates that academia will train graduates in accordance with the newest tools, trends, and technologies to meet its requirements, academia expects an ever-increasing number of graduates to receive internships and training from industry. Additionally, *the industry lacks the resources to accept and educate recent graduates*. In order to turn these difficulties into opportunities, *academia must act proactively in collaboration with policy makers and industry leaders* (MIT Open

Learning, 2021). Academic institutions possess the resources— people, time, and space—so they should make the most of them.

Challenges to Bridge the Gap and Recommendations to Overcome Them

Some companies fail to provide a supportive environment that fosters learning at work. For instance, once they realise their subordinates are getting better, some managers will give them more work to make them fail (Zehr & Korte, 2020). This is because in workplaces where education is a prerequisite for promotion and pay increases, the supervisor knows that when an employee receives a better education, they will be passed over, which in turn irritates the employee who is attempting to better themselves. In order to solve this problem, *the organisation should pass legislation that makes it possible for those who are attempting to better themselves to do so with happiness*. There are some exceptional companies who are willing to provide financial support to any of their workers who wish to pursue higher education. They believe that this is important because, no educational knowledge is a waste but is an added advantage to the organisation's work profile. In order to determine the best ways to improve and enhance workplace jobs, representatives from the government, educational institutions, and businesses must collaborate. This can be achieved by *reaching a consensus among all stakeholders regarding the appropriate modalities for workplace learning that will meet their needs*. It's also important to remember that producing excellent graduates will lead to improved productivity and workplace performance, both of which will significantly raise profitability. Increased profits translate into higher taxes paid, which will benefit the government in the long run. This implies that it is beneficial to everyone.

Conclusion

Collaboration between academia, industry, clients, students, and faculty forms an ecosystem that is essential to the success of students with industry partners. It takes creativity and entrepreneurship to comprehend the rise of new research topics proposed by college students that could spur innovation or add value for the business. Students use scholarly analysis in their hands-on learning. To bridge the gap between research and practise, a new discipline must be established because it is a complex task to provide practitioners with knowledge and to translate research into practise. Research findings are transformed into trustworthy, useful outcomes through translational development, bridging the gap between academia and industry.

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