

Why can't we do it here? How early can innovation and entrepreneurship be taught?



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“Have the institutions (in particular IISc and the Indian Institute of Technologies) over the past 60-plus years contributed to making our society and the world a better place? Is there one invention from India that has become a household name in the globe? The reality is that there is no such contribution from India in the last 60 years,” thus spoke Mr. Narayana Murthy during the IISc convocation ceremony held in Bengaluru on Wednesday, July 15, 2015.” (The Hindu July 16, 2015)

It is not surprising that the scientific community and the teaching community in the country were taken aback and consider this as an unfair criticism. After all, free India has always been a country in transition. When the country came out of the colonial rule in 1947, we inherited a large underfed population, poor resources and poor infrastructure including the educational infrastructure. It is our early investment in higher education and industrial infrastructure that led us to where we are today. If India is no longer a country of chronic food shortages, if India is recognized as a global player in selected areas of high technology like atomic energy and space in spite of several decades of demeaning technology denials, it is the human resource nurtured by our educational institutions. Almost the entire Indian diaspora in Silicon Valley or in Route-28 are products of the very Institutions those Mr. Murthy is critical of. US gave them a different kind of opportunities that India did not provide and they delivered differently. Can it be held against the Indian educational institutions? At the same time, the message from the full text of Mr. Narayana Murthy's address appears to me somewhat different and relevant. Mr. Narayana Murthy was simply lamenting “Where is the Indian Silicon Valley? Where is the Indian Route-28? If a small Indian diaspora can do it there, why not in India?”

It is well known that Innovation and Entrepreneurship characterize the genetic map of the US science and technology systems. How is the Innovation and Entrepreneurship ecosystem in India? Indian civilization is thousands of years old. A civilization that has survived natural disasters, external invasions and internal conflicts for so long can't but be innovative and entrepreneurial. Three centuries of colonial rule had their impact on this ecosystem. Innovation and entrepreneurship got more and more limited to trade and commerce with deliberate efforts by the colonial rulers to scuttle local resources and talents. Not only India missed the industrial revolution but it also lost the ecosystem for technology and skills related innovation and entrepreneurship. Dominated by government led initiatives in the early decades of free India, the Indian society itself evolved as a risk-averse society with emphasis on jobs and family businesses.

India did realize rather early that it is important to nurture innovation and entrepreneurship amongst the technically qualified youngsters if the country has to draw the full benefit of the technological developments of the twentieth century in the country and across the world. The establishment of the National Science & Technology Entrepreneurship Development Board (NSTEDB) under the aegis of Department of Science & Technology and a chain of Science and Technology Entrepreneurship Parks in some leading technical education institutions were perhaps the earliest efforts in the country to promote technological innovations and entrepreneurship among young students. Unfortunately, the government controlled license-quota environment of the pre-90's did very little to encourage entrepreneurship. It is interesting to note that India and China embarked on entrepreneurship training almost at the same time.

When India opened its economy to the global markets in 1991, there was of course a wide spread apprehension that India may not be able to face the global competition. There was also a perceived window of opportunity. Thanks to many new initiatives taken by the government such as the creation of the Technology Development Board and the Technology Business Incubators, the country witnessed many new technological successes some of which were indeed globally competitive. The TBI's offer not only technical and infrastructural support to aspiring youngsters but also an integrated package of support services with moderate costs. The Biotechnology Industry Research Assistance Council (BIRAC) under the aegis of the Department of Biotechnology is yet another initiative of the government to bring academia and the Industry closer leading to new products and enterprises. Who can forget the outstanding successes of Indian start-ups in the global vaccine market? It is indeed intriguing why we are not seeing such successes in other sectors. It is even more intriguing to see that some of the initiatives have become non-functional today. There is indeed an urgent need to review and understand why there were many successes in the early years after the liberalization but not now. It is my perception that today innovations in the IT industry are primarily driven by the industry itself while there is substantial participation of the industry in nurturing innovations in the biotech industry. Fortunately, these developments have also attracted venture capitalists from across the globe. The recent reverse migration of technopreneurs is yet another encouraging sign. These developments are bound to strengthen the ecosystem for innovation and entrepreneurship in the country. Unfortunately, in the manufacturing sector requiring large investments, the industry participation is minimal and entrepreneurship is yet to take roots. Government initiatives within the framework of global trade agreements are unavoidable.

Last but not the least, it is important to remember that innovation and entrepreneurship are not limited to the technology domain alone. They have to percolate across all segments of the society. This can happen only when innovation and entrepreneurship training become part of our educational system. This calls for a close cooperation between the educational institutions, the government, the industry and the public at large. Professional academies like INAE have a major role in making this possible.

A large number of people in my age group have children abroad. I am no exception. My daughter lives in California. Parental responsibilities demand that you visit them periodically. When you visit them, you do not know how to spend your time and one of the pleasant duties is to escort the grand children to the school. During one of my visits, I happened to escort my grand son to the school on a Saturday for some extracurricular activity. The teachers were kind

enough to permit me to sit in a corner of the room and watch the children without disturbing the class.

After the usual pleasantries, the teacher asked every student what they had for their breakfast. The students were asked to write it down on a wall poster. Every student was also asked to say a few words about their breakfast. Typical of most US schools, the ethnic diversity was obvious and that reflected on the breakfast menu. The enthusiasm of the students to describe what they had for breakfast to an audience, not all of whom were familiar with those items, was obvious. At the end of the day, the students were asked to bring one or more photographs of the breakfast items prepared in their house with brief descriptions of how they are prepared, their nutritional value etc. and a sample portion. The student-teacher and the student-student interactions were so lively that I decided to accompany my grand son to class the following week. The next session started off with all the photographs neatly arranged on a display board. The students took their turns to come in front and give a brief description of the items that they brought, their ingredients and how they are made. Every student was then asked to name one or more breakfast items that he liked most. It was amusing to note that every student wanted something different from what he has for breakfast in his own house. I was also surprised to see that the humble idli was one of the popular breakfast items among the students though very few of them had the luxury of having idlis in their house. Apparently, a popular Indian restaurant in the vicinity was tickling their taste buds with steaming idlis and tangy sambar and chutney.

During the week, my daughter had a call from the teacher and was asked whether she would volunteer to demonstrate idli making to the students during the next session. My daughter ended up in the class room the next week end with all the paraphernalia and made idlis in front of all the students. At the end of the day, my grand son was asked to work out how much it costed to make one idli. He had to also explain why it costs more in a regular restaurant.

It was then time for me to return. I heard from my daughter that after sometime, when there was a student fest in the school, my son wanted to put up an idli stall and ended up with a tidy sum as profit in his pocket. I now realize that the teachers had created an entrepreneur in my grandson without saying so. I now realize that it is never too early to introduce innovation and entrepreneurship.