INDIA IP PLATFORM

Cooperation between India and the European Union:
The relevance of Liberal Education for research

Reply to the "*Roadmaps - SFIC – 020316*"

February 2016

In continuation of the 2014 note

In 2014 the India Platform team wrote that the then *Draft roadmap for cooperation between India and the European Union* was interesting because of its specificity and the pointers it gave as to where to look for successful and important science and technology collaborations between the two regions in the short and the middle long term. The current roadmaps show similar specificities and pointers. However, in our 2014 note, we also pointed to an important lacuna in the roadmap: it contained no awareness of the difference in research contexts between India and Europe. More specifically, we indicated the absence of a research culture in India. We also suggested that unless collaborations focus on bringing such a research culture to India, these would not yield the expected results.

The *Second progress report on the implementation of the strategy for international cooperation in research and innovation (Draft Outline)* suggests that this has indeed been the case*.* India is remarkably absent in the cited showcases of success in the programmes of the European Commission. How do we understand this absence? Is it an unwillingness to participate, or the lack of the conditions required for participation? We would like to reiterate what we wrote in our 2014 note here: many Indian students and researchers participate in European Commission programmes individually, but India does not have the fertile soil to let research groups develop that can carry longer term research projects forward.

At the moment, Europe selects potential researchers with high marks from the Indian educational (rote learning) system. From our experience we know that very few to none of these students possess the required attitude and skills to do research. In a European research environment, we see that 50% of them catch on, while 50% of them do not and are not able to do research on the level required (PhD or post-doc). The successful 50%, after their stay in Europe, either (1) are keen to move forward to the US, or (2) return to India. There, however, it is extremely difficult for them to find a research environment to develop their research potential. Europe until now, has not been focusing on this huge loss of investment.

How can Europe aspire to change this situation such that (a) we realise our aims of establishing a smooth knowledge flow, (b) we create real knowledge partners who learn from Europe's experience but do not need to live in Europe in order to thrive and thus, (c) we witness the maximum appreciation of our investments?

What we wrote in 2014 remains as relevant today as it was then. Instead of repeating ourselves we would like to suggest some possible ways of tackling this situation in what follows.

Making the soil fertile

In order to start developing a fertile environment for research in India, the India Platform suggests a three-pronged approach:

- Start calls for the **building of research groups** in India, where the weight of expertise and personnel input lies at the European side, and the weight of operational, monetary input (purchase of machines, building of labs, collecting of basic research samples, honorariums for visiting researchers …) lies at the Indian side.

- Increase calls for **long term research stays for Indian researchers** in Europe (minimum 2 years) and decrease calls for short term research stays (6 months and shorter). This will have a huge impact on the absorption effect of research traditions by the Indian researcher, allowing him or her to take the experience back home and contribute to the development of a research culture in India. In order to avoid brain-drain to Europe, this strategy needs to be accompanied by building research groups in India and overhauling educational strategies in the country, thereby allowing these researchers to go back to India and train others in a nurturing research environment.

- Start calls for research in science and technology **curriculum development** with a focus on training research attitudes and shaping science education in a way that makes it responsive to solving problems in society.

Before concluding this reaction, we would like to elaborate on the last suggestion and propose to link it concretely to the objective of collaborating on smart cities in India, which appears on the SFIC road map.

Smart Cities will need Smart Education

The Indian government has earmarked about $ 980 billion for a project that seeks to build 100 smart cities in India over a period of five to seven years. While the concrete plans of the project tend to relate to infrastructural development, there is a very clear emphasis on sustainability and an overall commitment to creating situations for improving citizen participation and setting up mechanisms for quick and effective problem solving. In other words, an enormous amount of research is required. Europe can play an important role here, not only through research collaborations but even more so by investing in **curriculum development research with a focus on research into the European tradition of liberal education**. Through such research we can generate the science teachers, engineers and scientists who can actually lead the way ahead at the end of five years not only to sustain what has been built but to continuously improve on it.

Why is liberal education so important? In Europe, we have seen that a strong presence of social sciences and humanities is crucial for scientific research and creativity in general. The liberal education of Europe combines natural and social sciences. In the words of Mortimer Adler:

> *"Liberal education, including all the traditional arts as well as the newer sciences, is essential for the development of top-flight scientists. Without it, we can train only technicians, who cannot understand the basic principles behind the motions they perform. We can hardly expect such skilled automatons to make new discoveries of any importance. A crash program of merely technical training would probably end in a crashup for basic science. The connection of liberal education with scientific creativity in Europe is not mere speculation. It is a matter of historical fact that the great German scientists of the nineteenth century had a solid background in the liberal arts. They all went through, a liberal education which embraced Greek, Latin, logic, philosophy, and history, in addition to mathematics, physics, and other sciences. Actually, this has been the educational preparation of*

European scientists down to the present time. Einstein, Bohr, Fermi, and other great modern scientists were developed not by technical schooling, but by liberal education."

Europe takes this self-evident exposure of science and technology students to social sciences and humanities throughout their education for granted. This is not the case in India. Two major absences are repeatedly noted in the Indian universities: that of a truly comprehensive education and that of creativity in research. Both educators and employers point out that graduates excel in taking tests and performing specific tasks but lack imagination when it comes to developing new ideas and inventions. Without educational programmes that teach students to reason critically and become well-rounded and complete human beings, Indian graduates will not acquire the attitudes necessary for doing fundamental and original scientific research.

There is an additional challenge as well. Very often, challenges that would be easily resolved as issues of planning or infrastructure development, generate social conflicts in the Indian situation. For instance, planning and development programmes routinely face obstructions generated by community sensibilities. Dealing with these social sensitivities should not become either a matter of generating conflicts or an excuse for slowing down development. This can only be achieved if we generate planners, engineers and researchers who understand social sensitivities and can work with a vision that does not violate well-founded cultural sensibilities. This has simply not happened because of the nature of science education in India, which is completely divorced from any engagement with social reality. Scientists or planners are simply technicians who act according to government instructions, rather than study the social and cultural constraints under which a project must be conceived and propose creative solutions to overcome hurdles.

How can Europe help India develop a model of education that is suitable for its needs?

Europe's model of liberal education could well serve to give some pointers to solving these problems. However, the repeated failure of simply grafting the liberal education model into the Indian context should teach us to proceed with greater care and understanding. That is why research projects that focus on curriculum development and the generation of a new educational model would greatly benefit the research collaborations between India and Europe in the long term. Truly smart cities will need smart education if they are to be sustained. Such projects cannot be achieved in five or even ten years. But, five or ten years spent in the right direction could orient and spur Indian development for the next fifty years or more.

Sources

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