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Knowledge and human resources: Educational policies, systems, and institutions in a changing India

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ABSTRACT

New opportunities appear every day in India. Which are real and will lead to equitable and sustainable development when taken, and which are a mirage? Today, many do not see India's obvious and enormous problems and drawbacks as obstacles to change. These optimists exude confidence in mechanisms whose implementation will make India a knowledge superpower in 20 years. The pessimists, seeing barely half a dozen experts in each major area of science, see a system without content or form, where the ballast of the past keeps the ship of change in port, and chaotic spinning is mistaken for progress. Both optimists and pessimists talk constantly about China as an example to follow—or not—depending on the day of the week. Is India's knowledge economy actually headed somewhere? Or is it impossible to meaningfully use the words policies, systems, institutions, and India in the same sentence?

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1. Introduction

Several of the learned and wise among Indians take much pride in the early contributions of their ancestors to the foundations of knowledge, philosophy, language art, science, and technology. Much of the basis of all that is good and great came from India, they insist. This 'Golden Age' collapsed as a result of invasions, notably by the Mughals and then the British, these scholars argue. Restoring this past glory will give back India's rightful place as a global knowledge leader. To a biologist, this ownership-by-descent of the origins of knowledge is bizarre at best. India as we know it is barely 60 years old. It is currently peopled by those who can claim a genetic relationship to those who invented the concept of 'zero'—perhaps India's most famous contribution—as much as they can lay a claim to being related to Genghis Khan, Aristotle, or a host of other famous people who changed the world. The sub-continent is a genetic cone where much has toppled in and churned. It is by no means genetically or culturally homogenous. Further, much of this attitude of taking pride in, and wanting to return to, the country's glorious past in a manner that, to a large degree, combines passion with rare examples of selective scholarship is dangerous at its worst.¹ It embeds certain 'superior' features as intrinsic to 'our' culture, and those features become barriers to equity, inclusiveness, and change. If there is any thread of history that connects all Indians of today, it is of much more recent origin, yet it places far stronger demands and responsibilities on its citizens than a glorious past.

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¹ I have no problem, it should be stressed, with the study of the history of science, and I do not for a moment dispute that much scholarship certainly originated from what is now India. I would merely like to assert that whipping up national pride on these issues serves no purpose and may actually be dangerous.

The origin of this connecting thread lies in the period that straddles the end of British rule. Having plundered and looted India, and fuelled the industrial revolution at home, the British found themselves ruling a society that needed to be revived, if only to serve their colonial interests effectively in a dramatically changed world. The native population was too large to be ignored, decimated, or subdued, as happened in the Americas and Australia. Much of India's modern education base in general, and its science and technology in particular, was created by the British to serve its interests: a handful of well-trained natives was sufficient to keep the entire population well-behaved, they rightly calculated. The expanded use of English was a natural consequence of creating a new Indian bureaucracy whose social origins showcased the astute respect that the British had for caste, religion, royalty, and region. The worst and most ugly aspects of Indian social stratification remained, and indeed grew stronger in this period that saw the growth of the railways and the use of English as the language of power.²

Independence was an opportunity to be seized—nettles and all—to truly transform India for *all* its new citizens. India's republican constitution, whose crafting was led by B.R. Ambedkar,³ leader of India's most oppressed and lowest of the low, seemed the beacon for change. Here was the opportunity to overthrow the one legacy that is truly Indian and goes back deep into its history: the pernicious caste system. It was an opportunity to bring forth into the highest seats of knowledge, through universal education, all those who had been truly outcasts, barred from knowledge and learning and from society itself. Depending on your viewpoint (and there are as many as there are Indians), India lost this opportunity in half a billion ways, or grasped it meaningfully in half a billion other ways. However, in the areas of education, knowledge, and related human-resource development, and in other areas too, there is a widespread feeling that despite, or because of, 60 years of independence, now is the time for great things to happen: How valid is this feeling?

2. Universities: new ones for old, or new ones and old?

Everyone agrees that the Indian university system needs reform. The great universities of the British era were at the presidencies of Calcutta, Madras, and Bombay, all established in 1857. Benares Hindu University and Aligarh Muslim University were started by Indians, and their stature increased rapidly. The Indian Institute of Science (IISc), celebrating in 2008 its 100th year of founding, was another effort whose origins lie in the desire to stimulate national resurgence. The strength of these and other centres of learning was in scholarship, not research. They produced well-trained, English-speaking elites whose job was to run the Empire. Yet, if a golden age of Indian science ever existed—if the term is understood to mean a list of extraordinary people whose contributions are still acknowledged—it was in British India beginning around 1900. No one doubts the contributions of Jagdish Bose, Meghnad Saha, C.V. Raman, Satyen Bose, and Srinivasa Ramanujan. But the list is small, and its very existence is as much a peculiarity of the way science was conducted in the early twentieth century as it is of the genius of these individuals and the liberating environment the universities offered. At the beginning of the last century, science was such that it allowed simple instruments and/or the quality of individual thought to be used to produce great results. The size of the global enterprise at that time was so small that the entire community of scientists in each broad area knew of each other, albeit by snail-mail and travel by boat. The resources needed to make a good department in Calcutta were few but similar to those required in Cambridge: some good teachers with good academic lineage and some driven and talented students.

When Indians rightly complain about the decline of our university system, they nevertheless forget the other two parts of the 'triple whammy.' The size of today's global university research system has grown several times over the course of the twentieth century, largely because of growth in America, but also in Europe and Japan. And this growth has been part of a major qualitative change: since World War II, twentieth-century science has seen an increasing requirement for investment and resources. While there was still some room for the lone genius from an obscure location, the competition for this space was stiff. Each new niche was rapidly occupied by Americans and those whom America so successfully imported.

Today India is trying to clear the disarray in its university system. Unprecedented growth is anticipated in undergraduate and graduate education and research in the university system. New institutions will have to grapple with both real and imaginary problems. A very real problem is one of human resources: there is much cynicism about where the faculty and researchers for all these new⁴ institutions will come from. There is also a feeling that the new comes at the cost

² These are the supposed boons of British rule that 'peacefully' transformed a poor and incompetent Asian non-nation into the world's largest democracy. Further, it is said that while Mohandas Gandhi's non-violent struggle was inspirational, it could only have succeeded against an enlightened power like Britain!

³ India's science and educational systems of today are the consequences of the policies of two great leaders: Jawaharlal Nehru, India's first Prime Minister, and B.R. Ambedkar.

⁴ Between 15 and 45 new institutions, depending on how one counts. In addition, there will surely be several new privately supported institutions. The Science Advisory Council to the Prime Minister has recommended, and the government has already started, the Indian Institutes of Science Education and Research. Three are functioning and several more will start in 2008. The Indian Space Research Organisation (ISRO) has started a major research institute in Tiruvananthapuram. The Department of Atomic Energy has started a research institute in Bhubhaneshwar. And the central government has announced 30 new 'central' universities, i.e., centrally funded and relatively free of the quagmire that bogs down most state-run universities (see also footnote 6).

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