POSITIONING BHARAT
as a Knowledge Leader
by Re-architecting Our
Higher Education System

नास्ति विद्यासमं चक्षुः

Hindu Education Board

HINDU EDUCATION BOARD

MISSION STATEMENT

The aim of the Hindu Education Board is to ensure that all members of the society receive quality education. Additionally, the Board seeks to encourage creation of high quality affordable educational institutions for all members of society, regardless of their social and economic status.

THE NEED

A society which is not well-educated is incapable of sustaining itself over the long-term. It is education which drives positive social change, and ensures betterment of a nation. Civilizations which do not value education are susceptible to decay and deterioration. An overview of influential countries of the world leads one to conclude that the presence of a universally accessible quality educational system is vital for sustenance of any civilization.

Thus, the Hindu civilization must develop a strong and viable system of education so that it can prosper and remain strong. It must strive to ensure that all members of the society, regardless of their socio-economic status, have access to quality education, thereby becoming meaningful contributors to larger and multifarious societal goals.

The Hindu civilization has had a splendid record of investing in education over last several millennia. Great institutions like the universities of Taksha-shila, and Nalanda are a testimony to this fact. In more recent times the Hindu has created a large number of wonderful institutions including Banaras Hindu University, Madras Institute of Technology and Birla Institute of Technology and Science. However, despite these later initiatives a large part of the society still does not have access to affordable quality education. This has seriously impaired the overall progress of our country. The Hindu civilization, which is more than a billion strong, and constitutes more than 15% of global population, cannot rely primarily on external resources and efforts to meet its educational needs. Rather, it has to urgently develop, through internal resources, a significant number of institutions providing superior education in all fields including natural sciences, engineering and technology, social sciences, liberal and performing arts, law, business and management, ethics, religion, philosophy, and spiritual sciences.

Also needed is the establishment of numerous educational institutions of excellence which set benchmarks, and standards, and induce innovations in diverse areas of knowledge, thereby offering educational leadership to the world. A civilization which does not provide leadership in the area of education, progressively feels more insecure and less confident, since its perspectives remain perpetually under-appreciated and prone to distortions and misrepresentations. Creation of numerous institutions of excellence in different parts of the world will address this very serious anomaly by generating competent and confident Hindu leaders in their respective areas of academic specializations.

Contributors

Shri Aniruddha Deshpande
Prof. Rajani Gupte
Dr. Narendra Faujdar
Prof. Kapil Kapoor
Prof. Shrawan Kumar Sharma
Prof. Satish Modh
Swamini Pramananda
Dr. A. P. Singh
Prof. Jagbir Singh
Shri Prashant Singh
Shri Manindra Tiwari
Dr. Nachiketa Tiwari
Prof. Uma Vaidya
Swami Vigyananand
Dr. G. Viswanathan

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707 Pearl Omaxe Tower-1, Netaji Subhash Place, Pitampura Delhi 110 034.

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2. Executive Summary

Our country's higher education system is terribly broken. It produces mostly unemployable graduates, promotes little research and innovation, and is not accessible to the poor. Further, our education system, by design, is incapable of projecting our civilizational interests across the world. We cannot become a global power, and eradicate poverty unless we immediately fix this system. Through this document, we propose key policy and structural changes in our higher education system to address these concerns.

In this endeavour, we have been guided by four key principles. First, the proposed framework makes the higher education system truly democratic, as it facilitates entry of millions of poor into the higher education system. Second, it promotes a policy-driven decision making system, thereby reducing chances of graft and favouritism. Third, it will yield benefits on the quality front in a relatively short time frame. Finally, we have ensured that the proposed architecture will be integrated with the needs of our society and civilization.

We propose adoption of credible measures to democratize higher education. The current system of government subsidies helps only the non-poor. Thus, there is a need to launch a large-scale National Freeship Program for poor and meritorious students. Such a program on its own can potentially increase Bharat's higher education GER by 4-5% within a span of next four years. This would mean that over 40 lakh households, or 1.8 crore individuals, for the first time in their histories, will gain access to higher education. Further, we observe that Bharat badly needs doctors. Also, the regional spread of doctors is highly disparate. We propose to address this problem through setting up of a series of medical colleges attached to most of the district hospitals in the country.

To rectify higher education's governance structure, we propose that the current emphasis on excessive regulation should be done away with. Instead, there should be true autonomy for academic institutions at college level, increased facilitation, strong requirements of transparency, and enforcement of strict compliance regimes. A strict compliance regime would imply strong penalties for those institutions which indulge false propaganda, untrue promises, unwarranted increases in fee, and charging of under-the-table fees. We propose to offer such protection to students through setting up of state level tribunals. Further, requirements of transparency would imply periodic release of statistics on placement, course content, accreditation, faculty qualifications, teaching standards, fee structure, and management practices in public domain. Access to such information would help students, employers, parents, regulatory agencies and the government make informed decisions.

The report recognizes that much of the growth in higher educational sector is coming from the self-financed sector. Such a growth must be welcomed with caution. Further, we realize that leaving education completely in the hands of "market" economics is neither pragmatic, nor in the national interest. Thus, we have clearly scoped out areas where government institutions have a clear and significant role cut out for themselves. This includes providing educational leadership, propel hi-end research, push the boundaries of knowledge further, and undertake specific educational initiatives which are tightly coupled to nation's strategic interests.

The report also lays out a model for improving teacher's quality. The proposed model is scalable as well as economic. Our model addresses the needs of all stakeholders involved in the process of education, viz. teachers, students, parents, employers, administration, regulators, accreditation agencies, and the government. We also suggest ways to systematically innovate our curricula. Such innovation is critically needed for Bharat to emerge as a global player along financial, strategic, and civilizational dimensions. Further, such innovations will improve our international rankings in areas of research and innovation. Finally, the report offers policy vectors for driving better research and innovation, as well as for introducing "value education" in our education system.

At a fundamental level, our current higher educational system does not meet our societal needs because it is centered around regulatory and governance bodies. It was designed to meet the interests of our rulers during the colonial times. For this reason, the current structure is insensitive to the needs of the two most important stakeholders in the overall higher educational system: the student and the nation. The framework we propose places students and the nation at the center, and everything is built around the needs of these two very important stakeholders.

Currently, Bharat has the world's largest higher education infrastructure in place. This, coupled with our low cost skilled labor can help us become the higher education hub of the world. However, this will happen only if our higher education system has the right design. We believe that this document helps us get there.

3. Recommendations

A. Democratization of Higher Education

Higher education is by-and-large unaffordable to poor students. In 2012-13, Bharat provided a mere 164 rupees on a per capita basis in form of scholarship. To address this severe flaw, we propose a flagship initiative: The National Freeship Program for Poor Students. This initiative would provide for all the costs of higher education (including living expenses) for at least 10 lakh poor students annually. This would increase GER from current value of 21.1% to 25% within a span of mere 4 years. During the same period, over 40 lakh households, or 1.8 crore individuals, will for the first time in their histories, have a member in their house pursue higher education. The program would also act as a performance-driven funding scheme and force educational institutions to raise their quality. It will ensure more diverse student population on campuses, thereby promoting innovation. And finally, it will enhance asset utilization ratios of colleges.

We also propose a National Mission for setting up of medical institutes attached to most district hospitals. This will democratize medical education, improve quality of service at district hospitals, broaden access to medical facilities across the country, and reduce health care costs.

B. Increased Facilitation and Compliance, and Reduced Regulation

Our higher education governance system controls educational institutions through three instruments: affiliation, funds, and regulation. Unfortunately, none of these instruments are doing what they were designed for. Paucity of resources and excessive regulation has rendered these instruments ineffective. Our regulatory system is complex, and confusing. It breeds inefficiency and corruption while stifling initiative and experimentation. Such a system should give way for a facilitative and accommodative system, which emphasises on objectivity, compliance, transparency, and disclosure.

We should do away with the affiliation system as it dissuades colleges to innovate, and encourages non-serious players to enter the "education market". This system has rendered universities as mere controller of examinations. In its place, we should rather have a system where educational institutions have the latitude to craft their own academic programs, develop appropriate curricula, and also grant degrees. This must be coupled with the setting up of a robust accreditation system run by professional bodies where accreditation occurs at the level of individual academic programs rather than at institutional level.

C. Protecting Students against Fraud and Misrepresentation

Many educational institutions have been criticized for fraud and misrepresentation. There is a strong need to protect students against such practices. This could be accomplished by setting up of state-level tribunals which help students recover their losses including opportunity costs and provide for strong penalties against false propaganda. These bodies may also refer cases involving egregious malpractices to the criminal justice system. Such a regimen should be complemented by requiring all educational institutions to provide full and easily accessible disclosures about their fee structure, faculty profile, placement statistics, accreditation status, etc. This will help students make informed decisions about their higher educational goals. In this context, portals like KYC should be strengthened and made available in all major Bharatiya languages.

D. Focused Roles for Government and Self-Financed Institutions

Even though most of the growth in higher education is coming from the self-financed sector, the central and state governments will continue to serve a very critical role in higher education. Key elements of such a role are discussed below.

- Most self-financed institutions are currently teaching institutions, and much research currently occurs in governmental institutions. This will continue to remain in the immediate future as well. Thus, the government must craft strategies to encourage its institutions to become globally competitive rapidly. This is needed particularly in areas of science and technology.
- There shall always be knowledge-areas which will be critically needed by the nation, but will remain untouched by the self-financed sector due to their low "market potential". Such areas of study can only be developed by the government sector.
- Historically, the government has acted as a regulator and the approval authority for higher educational institutions. With changing times, this role has to evolve into that of a facilitator, as well as an enforcer of diverse compliance and social justice requirements.

E. Enhancing Teachers' Quality

For improving faculty quality we offer a five-pronged strategy which needs support at policy level. These five dimensions are:

- Subject-specific teacher certification: Interactive online courses and tests can be used to meet this goal. This will upgrade teachers' knowledge in specific subject areas and they will be certified to teach the same. Post successful completion of the course, the teacher will be formally certified in the subject and awarded a letter grade for the same.
- Regulatory push for certification: Our regulatory bodies have been pushing institutions to hire PhDs as teachers. Such an emphasis is misplaced because most of our institutions are primarily teaching institutions. This focus on PhDs must give way to hiring teachers with subject-specific certification.
- Post-course evaluation: A teacher should continually enhance his knowledge-base as well as his teaching skills. For achieving the latter individual-specific measures of teaching effectiveness can be developed as a function of one's students performance. Continual evaluation of teachers' performance through such metrics will help them track their own teaching effectiveness and improve their teaching style.
- Performance linked compensation: Teachers' compensation packages must be directly linked to their performance and certification credentials.
- Disclosure requirements: Every academic institution should disclose data on certified teachers they have on their rolls. This should include the number of certified teachers in each department, subjects taught by such teachers, meta-data on their letter grades, and metrics of teaching effectiveness. Such disclosures will be beneficial for employers, prospective and existing students, college management, and accreditation agencies.

F. Curricula Innovation

We need curricula innovation to reduce unemployability, solve our problems, and bridge humanities, science and technology. For this, we propose the following:

- Core requirement: All undergraduate programs should have core courses on Knowledge Traditions, as well as Literary and Linguistic Traditions of Bharat. This will help our students to explore further and beyond while staying connected with our needs and culture. This will also equip them with powerful tools and perspectives that will give them competitive advantage internationally.
- Social sciences: In addition to having an understanding of contemporary Cartesian sociological tools, our students should be grounded in alternative integrative analytical methodologies as well. This way, they will interact with other traditions on a level ground and will have multiple tools to understand all societies of the world. They should also be trained in pressing issues such as water, power, environment, women, rural women entrepreneurship, etc. Finally, all social science analyses should be data driven. This will make our works objective and globally acceptable.
- Humanities: Curricula innovation in these areas requires development of bilateral relationships between humanities and sciences, and also introduction to Bharatiya analytical and epistemological frameworks. While such linkages will help humanists make objective assessments, they will sensitize hard-scientists and technologists to our society's needs and realities. Humanities' students should also learn about those Indic knowledge traditions which are pertinent to their fields.
- Medicine: A very large number of Bharatiyas depend on Ayurveda, Siddha, Unani, and other indigenous medical systems for their time-tested herbal base, economy and access. These systems use a very large corpus of credible textual material for treatment and diagnosis. Also, there is a growing trend across the globe to have a more integrated and comprehensive view of health, diagnosis and treatment. Due to these reasons, there is a case to explore the feasibility for a single integrated syllabus for medicine which incorporates the best elements from different schools of medicine.
- Science and technology: Students of science, and technology should be offered electives on *nyaya*, i.e. the science of logic, as well as *darshana*. Numerous Western scientists have developed new insights in the nature of reality through *darshana*. There is no reason to deny our students the same advantage. Also, certain Indic knowledge traditions may be particularly helpful for students of specific specializations. For instance, computer science students may benefit by learning about works of Panini and other Bharatiya linguists. This should be encouraged. Finally, students of engineering and technology should be exposed to local industry and crafts through formal courses. Such exposure will economically benefit the local industry, and will help it become globally competitive, and technologically strong.
- Strengthening of Bharatiya languages: English has emerged as the predominant medium of instruction for higher education. Despite its widespread dominance most graduate students are not comfortable with communicating complex ideas in English. Most of the poor and disadvantaged students are particularly weak in English. This adversely impacts their employability, and our goals of equity. Secondly, displacement of Bharatiya languages breeds cultural insecurity, and fuels a destructive version of language-based identity politics. Thirdly, it causes loss of indigenous knowledge systems and traditions, as they are accessible only through our languages. These traditions have helped us in past in managing droughts, harvest water, generate employment, negotiate conflicts, conserve environment, etc. Their loss can have several ill effects; economic, social, cultural, and political. Fourthly, decay of Bharatiya languages is destroying the very core of Bharatiya society as they are the best medium to express our

relationships with others, and connect us with our past, identity, world views and philosophies. Their restoration is very important for national progress. To achieve this, we must craft a comprehensive strategy for their development. Elements of such a strategy are detailed in this report.

G. Promoting Research and Innovation

Research involves creation of new knowledge, and expansion of human awareness. To achieve this, we need curricula innovation to encourage originality, expand students' minds, and connect them with ground realities. This should be coupled by rejuvenation of Bharatiya research centres, most of which are in disrepair. Further, given the growing role of self-financed academic institutions we should make public research funds accessible to selected private institutions as well. This will deepen our national research expertise. To widen our national technological pool we should incentivize industry; particularly the PSUs, to sponsor more candidates for PhD programs. Currently, the quality of technology students aspiring for a Ph.D. is not at desirable levels. This is because some of the best students opt for jobs rather than going for a PhD degree. A higher stipend for PhD scholars in area of technology will certainly reverse this trend. Higher remuneration packages for excellent research faculty members, and strong network of libraries will also promote research in the country. For fostering innovation we have to promote tighter academia-industry-society integration. Among other things, this would require having members of industry present in boards of academic institutions and elimination of barriers (social, economic, cultural, and linguistic) between the academic world and the society.

H. Value Education

` Value education can be a significant differentiator between Bharatiya and other educational systems. This can be achieved by having policy vectors which promote the following.

- Appropriated courses in our own textual and other intellectual traditions, should be developed to highlight the importance of all four *purusharthas*, and not just *artha* and *kaama*. Such courses should explain how concepts of family, marriage, respect for the elderly, knowledge, renunciation, teachers, women, environment and kinship, have helped us in the past, and are needed for the future as well.
- Students should be encouraged to participate in community development programs.
- A suite of case-studies highlighting linkages between material success and values should be developed. Teaching such case-studies and having role models, particularly from the industry, as guest speakers should be promoted.
- Careful scrutiny of course content to ensure that no messages undermining important human values are inadvertently conveyed to students.
- Campus environment should be designed to reduce availability of intoxicants, lack of punctuality, plagiarism, dishonesty, unreliability, discrimination, exploitation, harassment, etc.
- Development of sensitization programs for teachers which encourage them to promote core human values on campus.
- Promotion of organizations like NCC, and sports on campuses.

4. Overview of the Challenge

With 33% of our country-folk below the age of 15, we are one of the youngest countries in the world[i]. For purposes of comparison, the equivalent number for China was 17% in 2011. Thus, we are a country with the largest number of productive men and women, i.e. aged between 15 and 65, in the world. Such a demographic dividend can potentially enhance our GDP's annual growth rate by 0.9%[ii] to 2.27% over next three decades. However, this potential is realizable only if we can imbue our upcoming youth with appropriate knowledge, skills, attitudes, and values through a well-designed, functional and effective education system. Currently, our educational system is bereft of all of these much-needed features. Sans such an educational system our demographic dividend may very well morph into a demographic bomb. In this section of the report, we have identified five key areas where our higher educational system has proven to be incapable of meeting our national aspirations and goals.

Democratization: The demand for higher education in our country is set to rapidly increase in the coming decade. Such an increase in demand will be due to three key reasons, which are:

- Bharat's Gross Enrolment Ratio (GER) for senior secondary education, i.e. for classes 11th to 12th has risen from 27.8% to 49.1% over the period 2004-2013[iii]. This is an increase of 77% over the last decade. Further, this growth will expectedly remain unchanged in the coming decade as well. The increase in GER for senior secondary education has rapidly expanded the size of pool of eligible candidates for tertiary education, and is also creating a huge surge in demand for higher education.
- Moderate economic advancement of the nation, coupled with rapid increase of expectations of "good living" due to the rise of an "aspirational-India" is driving an ever larger number of individuals in proportional terms to seek higher education. This is reflected in the significant increase GER for our tertiary educational system. Between 2004 and 2012, it has more than doubled, i.e. it has increased from 10% to 21.1%. This growth will continue unabated, and will expectedly approach 40% in next 15-20 years.
- Finally, it should be noted that the GER for primary educational system is close to 95%. This will have a positive cascading effect on the GER for our down-the-chain i.e. secondary and tertiary educational systems.

Bharat's higher educational policy must aggressively facilitate such a rapid expansion, as it will not only democratize higher education, but will also yield significant economic and strategic benefits for the country. As per a UN study conducted in 2009, the number of working-age adults in Bharat will grow by as much as 30 crores over the period 2010-2040. "This would make Bharat – by an order of magnitude – the largest single positive contributor to the global workforce over the next three decades"[iv]. Ensuring effective participation of these men and women of Bharat to solve world's diverse problems will not only yield economic benefits, but will also project our country's soft power across the world. However, this can happen only if our educational system is accessible, affordable, provides quality education, and imbues strong values aligned with our civilization to students.

Finally, our higher educational policy must aggressively facilitate such a rapid expansion for one additional reason – our tertiary GER is far too low when benchmarked against other developed and BRIC economies. This is shown in Table 1.

Table 1: Gross Enrolment Ratio (GER) for Bharat and Benchmark Countries (%)

Country	Bharat	Brazil	Russia	China	USA	UK
Tertiary GER	21.1	36.1	76.1	26.4	94.3	61.9

Source: Educational Statistics at a Glance, MHRD, Government of Bharat, p. 39.

In general, a higher GER than what it is currently is indeed needed because a very large number of jobs (engineering, medicine, architecture, health, policy, administration, education ...) require a workforce which has been trained in tertiary educational system. Further, it is the universities and colleges of a country, where leadership – social, economic, political and cultural – is shaped. Low GER for tertiary education means that only a privileged few have access to leadership opportunities, which in turn drives poor governance, unrepresentative systems, wastage of national resources, and civil unrest. Further, quality tertiary education helps one negotiate complex challenges in life, due to acquisition of broader perspectives, and specialized knowledge through higher educational system. Moreover, a well-designed higher educational system can provide a vast range of services directly to communities including hospitals, legal clinics, management schools, high schools, museums, continuing education, volunteerism, and other social services. Finally, innovation, particularly in areas of science and technology can happen only through the instrument of a robust higher educational system. Bharat's future progress will critically depend on our country's ability to solve complex challenges cost effectively through research and innovation. Our current GER is hardly sufficient to meet all of these societal needs, and raising it further by at least another 10% over the next decade should be a key policy thrust of our higher educational strategy.

Affordability: Rapid expansion of higher education in Bharat is only possible to the extent it is affordable. Currently, a large number of seats in higher educational institutions remain unfilled because eligible students do not find the pursuit of higher education a financially viable proposition due to following three key reasons.

- Higher education is costly: Even though many students may actually want to pursue higher education, they simply cannot afford it. In past, the government has done little to address this challenge. In 2012-13, central and state governments had together spent a total of 352 crore rupees on higher education scholarships[v]. During the same period, Bharat had a total of 2.15 crore students in higher educational sector[iv]. In other words, Bharatiya central and state governments provided about 164 rupees per student as tuition scholarships. Subsidized loans schemes have also been designed to make higher education affordable. However, the efficacy of such schemes is doubtful as merely 2 to 3% of the total student population availed such facilities in 2005[vii]. In comparison, 50% students in Canada and USA, 77% in Australia and 85% in UK benefit from similar facilities made available to them.
- Pursuing higher education implies loss of earnings: In very large number of families, a young prospective male student, i.e. 15 years of older, is expected to earn bread for his family. Such a

responsibility directly conflicts with his aspiration to pursue senior-secondary and college education. Our educational system offers limited options for such prospective male students.

Table 2: Different Estimates on Employability of Bharatiya Graduates

Source of Information	National Employability Report (Aspiring Minds)	Perspective 2020 (Nasscom-McKinsey)	Assocham Study
Employability levels	18.3% for engineers (2011) 36% for graduates in clerical roles (2013)	26% for engineers (2012)	10% for MBA students (2009)

A similar study has been conducted by Wheebox which surveyed over 3 lakhs students spread over 29 states. The key findings of their study, titled as "India Skills Report 2015", are shown in Table 3.

Table 3: Employability Data for Bharatiya Graduates as per Bharat Skills Report 2015 (%)

Engineering	MBA	BA	BCom	MCA	ITI	Polytechnic	B. Pharma
54	44	29.8	38.4	45	44	10.1	56

Even though these estimates vary widely, they point to one important fact: our graduates are not meeting up to the expectations of their prospective employers. This in turn has yielded a situation where despite the fact that we have a huge graduate population, our industry is unable to fill up a very large number of entry level positions. As per an estimate, close to 36% of entry level positions remain unfilled due to poor employability of our graduate population[viii] . The implications for such poor employability levels are significant. It not only places a significant damper on our national economic progress, but can also trigger large-scale public unrest. If a very large number of young men and women, who have plodded hard to graduate from our universities cannot secure decent jobs and the accompanying sense of self-respect, our country will have to prepare for large scale expressions of anger, including violent ones, and such expressions will severely curb our economic progress.

Innovation and Research: Innovation and new knowledge creation are key elements of any higher educational system. These elements help a nation establish its leadership, and positively influence its economic, strategic, cultural health. Innovation in areas of science and technology not only helps a society solve its problems cost-effectively, but also creates markets for indigenous products outside the country. Innovation in areas of finance and management helps cut down costs, optimize resources utilization, discover and create new markets, and enhance a country's international competiveness. Creation of new knowledge in areas of humanities and social sciences plays a pivotal role in continual strengthening of self-identity, improved assessment of national priorities, advancement of national interests globally, setting the terms of discourse on international and domestic platforms, and global projection of national power. Finally, creation of new-knowledge in areas of philosophy and darshan helps an individual continually evaluate his existential purpose in ever-changing environs, and discovery of ever-new approaches for integrating the self with the larger whole constituting of family, society, nation, the world and indeed the cosmos.

Our educational system has miserably failed to deliver in areas of research and innovation. There is not one single area in which our educational system has proven to foster innovation, and create new knowledge in the truest sense. While well defined metrics to measure innovation-related capabilities of our educational system in non-technical areas are hard to get, consider the following as related to innovation in areas of science and technology.

According to a World Bank report, for every 10 lakh individuals, S. Korea files as many as 97.03 patents with the USPTO. The equivalent number for Bharat is a mere 0.35. In other terms, Bharatiya innovator produce, on a per-capita basis, 256 times lesser number of patents vis-à-vis S. Koreans. Another metric worthy of consideration in this context is the cost incurred in developing such patents. The same World Bank report also informs that the per-patent spend for Bharat is $15.6 million, while that for S. Korea is a mere $3.8 million. In other words, Bharatiya innovators not only produce a far lesser number of patents on a per-capita basis, but also spend approximately 4.1 times more in developing each patent vis-à-vis S. Koreans.

In general, our higher educational system is derivative in nature – i.e. it derives its sense of orientation and priorities from knowledge created elsewhere. The consequence of such an orientation is that much of the new knowledge created in our higher educational system is either a validation of initiatives undertaken elsewhere, or an incremental enhancement of whatever has happened

somewhere else. Such an orientation is also responsible for the fact that much of the knowledge created in our institutions remains of little relevance to our economy and society.

Value-Education: Our educational policy makers have been impressing upon the need of value education since last three decades. Value education was declared as national priority theme in the National Educational Policy (NPE), 1986. The Policy argues that "the growing concern over the erosion of essential values and an increasing cynicism in society has brought to focus the need for readjustments in the curriculum in order to make education a forceful tool for the cultivation of social and moral values". Earlier, the National Curriculum for Primary and Secondary Education (1985), argued that the values' crisis which our society is experiencing, "demands more explicit and deliberate educational efforts towards value development". Even earlier in 1983, the need for value education was explicit in the very first term of reference for the National Commission on Teachers. The document required the Commission "to lay down clear objectives for the teaching profession with reference to the search for excellence, breadth of vision and cultivation of values...".

Our values and attitudes help define our relationships with others and the environment. While cognitive understanding helps us develop tools to solve societal problems, value education helps us identify and prioritise these problems, and equips us with faculties for differentiating between right and wrong, but also between appropriate and inappropriate approaches to achieve our goals. Still further, values help in sustenance of law and order, promotion of fairness, equity and justice, and motivating individuals to perform acts of sacrifice for the larger good. While hiring, employers are not only looking at appropriate skills and cognitive abilities of an individual, but also her values as related to reliability, ability to work in teams, honesty, leadership, and resoluteness.

Despite the candid acknowledgement in our policy documents that values should constitute a core element of our educational system, there is not much to show in this regard. To illustrate this point, let us consider the 2012-13 report of UGC. This report, which runs for 358 pages, devotes, barely tangentially, a mere 3 pages to value education in Section 8.4 (Special Studies on Epoch Making Social Thinkers of India), and Section 8.6 (Human Rights Education). Further, even in these sections, the focus on impartation of desirable values to Bharat's graduate and post-graduate students is totally non-existent. Instead this section reports on allocation of marginal funds to support special programs in areas of human rights, and "epoch making social thinkers of India".

Given the fact that our civilization may be arguably the only one to have been driven primarily by values, and also the fact that not many other educational systems have invested significant efforts in developing a "value-component" in their educational systems, Bharat is uniquely positioned to develop global leadership in this area.

5. Understanding the Current Higher Education System

Bharat's higher education system is third largest in the world. It caters to the needs of over 215 lakh students through 9.5 lakh teachers, 670+ universities, and over 37,000 colleges. Tables 4, 5, and 6 provide key statistics on students, teachers, and types of universities, respectively.

Table 4: Break-up of Student Population Enrolled in Higher Educational Programs

Arts	Science	Commerce	Technical	Medicine	Law/Ed./Others
37.9%	18.6%	17.5%	16.1%	3.5%	1.9/3.5/1.1

Total student strength: 215 lakhs, Source: UGC 2012-13 Annual Report, p. 249

Table 5: Break-up of Teacher Strength

Colleges	Universities Departments & Their Colleges
82.5%	17.5%

Total number of teachers: 9.5 lakhs | Source: UGC 2012-13 Annual Report, p. 57

Table 6: Classification of Universities in Bharat

Central	State	State Private	Deemed	State Institutions	Total
44	300	151	129	4	628

Source: UGC 2012-13 Annual Report, p. 54

In addition to the institutes listed above, there are a small number of "Institutes of National Importance", which include IITs, AIIMS, IIITs, NITs, NIDs, ISERs, SPAs, NIPERs, etc. While some of these institutes like IITs and AIIMS' have degree granting authority and enjoy full autonomy, other institutes like the NITs enjoy only limited autonomy.

Figure 1: depicts the overall architecture of Bharat's higher educational system.

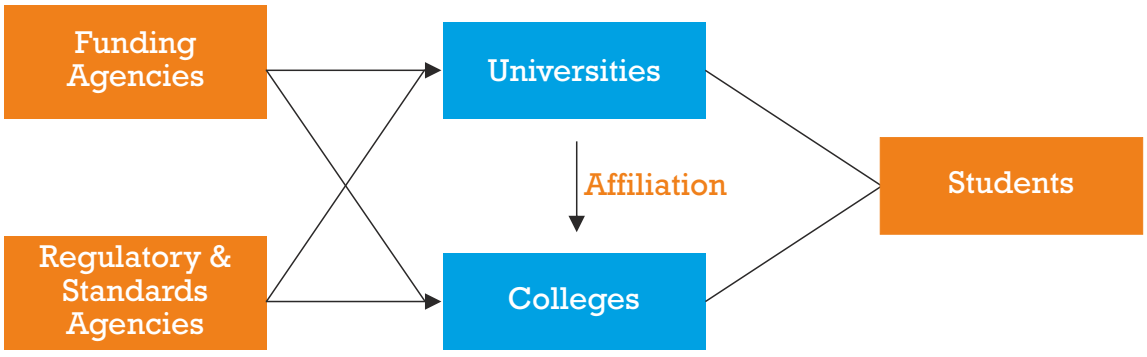


Figure 1: Architecture of Bharat's Higher Educational System

At the heart of this framework, which is linear and unidirectional in nature, lie tens of thousands of colleges and hundreds of universities, providing education to an ever increasing number of students. These education providers may be run by state governments, or the central government, or even private entities. The authority to grant degrees resides only with the universities. These universities, as shown in Table 6, can be categorized as "central", "state", "private" or "deemed-to-be".

There are three key instruments to ensure that the quality of education delivered to students is high and relevant to their and societal needs. These three instruments are the affiliation system, funding agencies such as the UGC, and regulatory agencies such as the AICTE. The efficacy of each of these three control elements is discussed in detail below.

1. The Affiliation System

Bharat's "affiliation system" makes her educational system arguably unique in the entire world. Even though over 80% of the students receive their education in colleges, the colleges by themselves cannot award degrees. That power resides solely with the universities. Such a practice is a legacy of Bharat's colonial past. It was designed with the intent to ensure uniform academic standards over a large number of colleges. Such a system was originally started in London University in 1836. However, unlike England, most of Bharatiya colleges hardly reside on the same campus as that of the university. The university has the responsibility of enforcement of standards with regards to curricula, academics, qualifications for teachers, etc. Some of key responsibilities of the university may be classified as:

- Conducting examinations
- Oversight of college operations especially of non-private ones
- Support to colleges in context of quality improvement, pedagogy, periodic curricula improvement and upgrading, etc.
- Projection of college's interests to higher governmental agencies

Driven by the belief that the university is a powerful driver of fairness, quality enhancement, and homogenization of teaching standards across the colleges lying in the jurisdiction of the university, the affiliation system has proliferated in Bharat. Such an assumption however, is not borne out by actual evidence. Further, careful analysis of the system exposes several faults with the idea of affiliation, the key ones being:

- Universities have ceased to exist as leaders in areas of knowledge-creation and educational innovation has diminished over the years. The underlying cause for this has been the fact that the focus of universities has now shifted to conducting mammoth-scale examinations for lakhs of students spread over scores of campuses in dozens of subject areas. Such a misplaced shift in focus of universities has slowly morphed them into "Controller of Examinations".
- Since the university is officially responsible for promotion of excellence, colleges have no motivation to excel on their own. In general, teachers in colleges are not interested in anything beyond regular teaching assignments.
- Over years, college administrations have developed a habit on riding on the tails of university. Many private colleges consciously avoid opting for university status despite their scale, because

they want to capitalize on the "brand value" of the university they are affiliated to.

- The preoccupation of universities with the responsibility of being the "Controller of Examinations" makes it difficult for them to innovate on curricula, improve teaching methods, and enhance systemic efficiency.
- In many universities, affiliating colleges number in hundreds. Quite often, these colleges are separated by distances exceeding hundreds of kilometers, and cater to lakhs of students. This is very much true of technical universities in particular. In such cases logistical and communication bottlenecks generate administrative inefficiency, lack of accountability, and unresponsiveness.
- Given the fact that all major policy and administrative decisions are taken at the university level, corruption has proliferated at all levels in many universities. In such universities corruption plays a significant role in matters related to personnel affairs, conduction of examinations, declaration of results, admission of students to colleges, grant of scholarships, policy formulation, and execution of regulation administrative functions.
- Finally, the notion of a university having jurisdiction over all colleges located in a well-defined geographical "service" area restricts competition leading to all the ills associated with monopolistic practices.

2. The Funding System

Funds are the second important control element in Bharat's higher educational system. The government is the largest provider of these funds, and it aims to use these funds for capacity expansion, as well as performance enhancement of educational institutions. Here, we evaluate how effective has the government been in meeting these objectives.

Increasing Quality through Funding: For the year 2012-13, the Bharatiya state spent 133.95 thousand crore rupees on higher education, which was equivalent to 1.43% of Bharat's GDP for the same year. Table 7 provides some details of funding allocations from central and state agencies towards higher educational institutions for the year 2012-13.

Table 7: Estimates of Governmental Expenditures for Higher Education
(Estimates are for Year 2012-13 in Thousand Crore Rupees)

	States	Center	Total
Universities & Higher Education	50.82	32.74	83.56
Technical Education	26.11	24.28	50.39
Total	76.93	57.02	133.95

Source: Analysis of Budgeted Expenditure on Education 2010-11 to 2012-13, Table 6.

While a significant fraction of these funds were disbursed by state and central ministries directly, the residual portion was channelled to higher educational institutions through funding agencies such as the University Grants Commission. Historically, allocation of these funds, both at state and central levels, has not been so much driven by either performance, or by policy, but rather by a combination of three key factors: unavoidable commitments, precedence and political imperatives. For instance, for the year 2012-13, MHRD's estimated financial allocation to institutes of national importance was approximately 60% of their total budget (under the revenue account) meant for technical education[ix] . Given these constraints, the government has only meagre amount of funds available for incentivising better performance. Still further, close to two-thirds of governmental funds for education is non-plan[x] in nature, i.e. they are committed for unavoidable expenditures on salaries, maintenance, etc. These monies just cannot be used to incentivize better performing educational institutions. Hence, in general the government has very little resources available, which it can use to drive performance improvement, or fund rapid expansion of higher educational system to address needs of our people.

To illustrate this point further, we analyze the depth of funding support provided by University Grants Commission, Bharat's premier and autonomous governmental funding agency. The UGC[xi], as per its mandate is allowed to fund only a limited number of universities and colleges. Its influence on Bharat's higher educational institutions through the lever of funds is limited because a large number of institutions are ineligible to receive its funds, and amongst the eligible ones, very few actually end up getting funding support from it. For instance, in 2012-13, only 7,448 colleges out of a total of 37,204 colleges in Bharat, i.e. a mere fifth of the total, were actually eligible to receive funds from the UGC . Further, hardly a few hundred institutions actually received any funds from the UGC. Table 8 provides an overview of fund distribution by UGC for 2012-13.

Table 8: Key UGC Funding Statistics (2012-13)

	Universities		Colleges	
No. of institutions eligible for UGC funds	Central	Others	Central	Other
Non-Plan funding support (crores)	44	584	7448	
Plan funding support (crores)	3085.2	329.2	197.3	1.8
Total funding support (crores)	2243.2	1570	39.2	336.5
Average (crores/college or university)	5328.4	1899.2	236.5	338.3
Actual no. of institutes funded	121.10	3.25	0.08	
(Non-plan/Plan)	24/41	27/204	NA	

In context of Table 8, following points are worthy of mention.

- Out of every 100 rupees disbursed by the UGC in 2012-13, over 68 rupees went to central universities, and 24 went to "other" universities, most of them being either state universities, or government run deemed universities. Not many private universities received any funds.

- Colleges, where over 82% of our higher student population studies, received only 7% of the overall funds disbursed in 2012-13.
- Funding per university averaged out to be 121 crores for central universities. It was 3.25 crores for universities belonging to the "other" category. For colleges it was a measly sum of 8 lakh rupees. A careful scrutiny of distribution of funding support to colleges reveals that most of this money, which amounts to 7% of total UGC budget, went to a limited number of colleges. Hence, an overwhelmingly large number of colleges which were eligible for UGC support did not receive any funds.
- While most of the central universities were funded by the UGC, not more than 13% of "other" universities actually received any financial support from the UGC.

Such an analysis shows that current system of fund allocation not at all an effective instrument for driving better performance and improved quality standards in Bharat's higher educational system. Next, we evaluate the feasibility of using government funds to support rapid capacity expansion of Bharat's higher educational sector.

Capacity Building through Funding New Initiatives: Recognizing that the demand for higher education in Bharat is exploding and will continue to grow at a fast pace over next several decades, Bharat's central and state governments have made conscious efforts towards capacity building through allocation of funds. Driven by the same imperatives, the private sector too has stepped in. Table 9 provides a historical perspective of the growth of higher education institutions in Bharat, and the role of self-financed sector in the same.

Table 9: Comparison of Growth in Private and Governmental Higher Educational Institutions

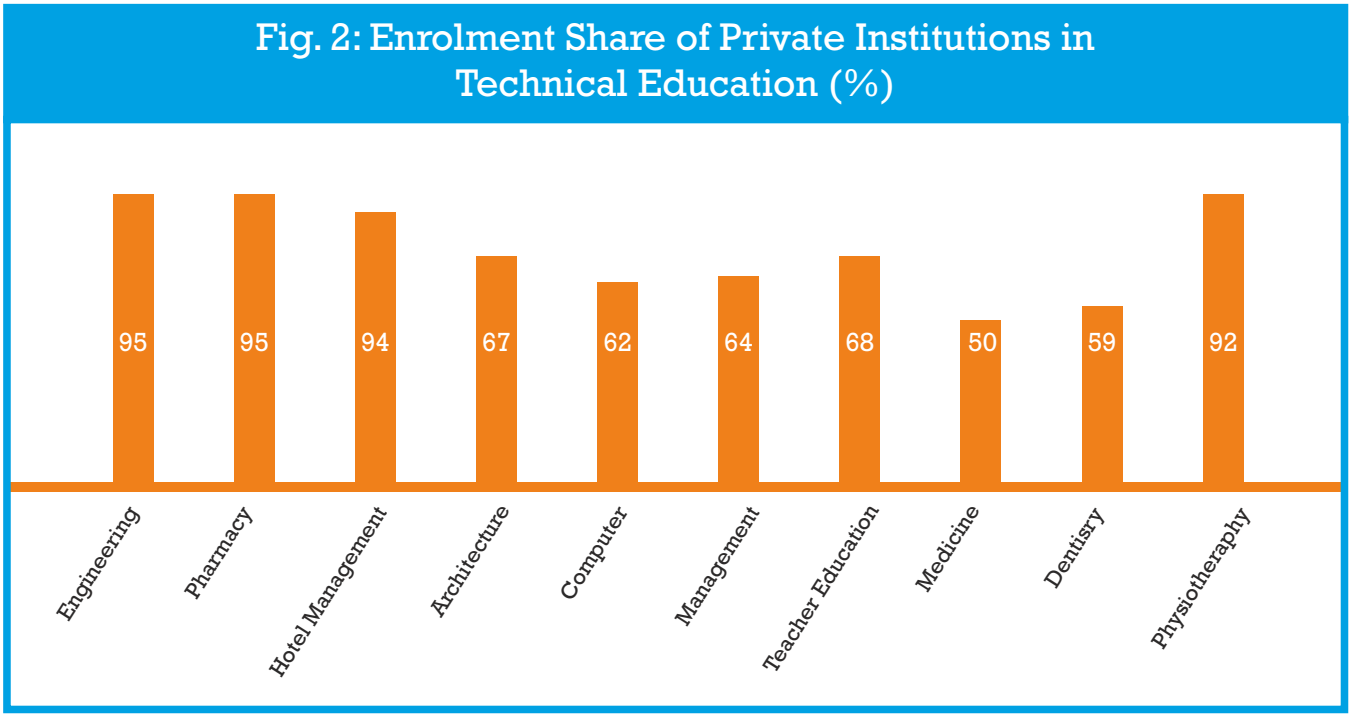
Comparison metric	2001 [1]	2006	2012-2013[2] (estimates)
Number of private institutions as % of total	43	63	80
Enrolment in private institutions as % of total	33	52	66
Enrolment in private institutions (lakhs)[3]	29.58	68.45	141.91
Enrolment in government institutions (lakhs)	60.07	63.18	73.10
CAGR for enrolment in private institutions (%)		18.3	15.7
CAGR for enrolment in govt. institutions (%)		1.0	3.0

What these data show is that despite all the initiatives taken by Bharatiya governments towards rapid expansion of capacity; most of the increase in same is attributable to the growth of the private sector. Over last decade, while student enrolment in governmental and aided institutions has increased by a mere 13 lakhs, the same in self-financed institutions is a whopping 112 lakhs. Enrolment share of self-financed sector in several areas of technical education is now in excess of 90%. Details for the same have been shown in Figure 2.

[1] Data for years 2001 and 2006 are from "Private Sector Participation in Higher Education – FICCI Higher Education Summit 2011.

[2] Estimates for 2012-13 are based on the fact that out of a total of 37,204 colleges present in Bharat, only 7,448 were eligible for UGC funding, and hence are either private-aided institutions, or government colleges. The percentage figure for enrolment is an extrapolation from 2006.

[3] As per UGC 2012-13 report, student enrolment figures for years 2001-02, 2006-07, and 2012-13 are 89.65, 131.63, and 215.01 lakh respectively.



Given this sharp contrast between the growth indices of government and self-financed sectors of higher educational system, it is inconceivable that the government, through its own funds will be able to materially contribute to capacity expansion needs of the country. Today, much of this expansion is attributable to the role played by the self-financed sector, and this fact will continue to remain so in the foreseeable future as well.

3. The Regulatory System

Bharat's universities and colleges are regulated and controlled through a panoply of organizations. Some of the key ones are:

- UGC: It has the responsibility to regulate all higher educational institutions sans those providing technical, or medical degrees, and some institutes of national importance. It enforces these regulations through the main body of UGC, and also through National Assessment and Accreditation Council (NAAC), an autonomous organization funded by it.
- NAAC: "The National Assessment and Accreditation Council (NAAC) is an autonomous body established by the University Grants Commission (UGC) of Bharat to assess and accredit institutions of higher education in the country. It is an outcome of the recommendations of the National Policy in Education (1986) which laid special emphasis on upholding the quality of higher education in India[xii] ".
- AICTE and NBA: The All India Council for Technical Education (AICTE) is the counterpart of UGC for technical education. However, there are some areas of overlap between the role of AICTE and that of the UGC. Established in 1945 as an advisory body, it was given a statutory status in 1987, and charged with responsibility of planning and coordinating development of the technical and

management education system in Bharat. It was also responsible to provide accreditation to postgraduate and graduate programs in these areas through its autonomous agency, National Board of Accreditation (NBA), which was established in 1987. However, following charges of corruption, NBA was made independent of AICTE. Further, a 2013 Supreme Court judgment has ruled that "as per provisions of the AICTE Act and University Grants Commission (UGC) Act, the council has no authority which empowers it to issue or enforce any sanctions on colleges affiliated with the universities as its role is to provide guidance and recommendations."

- **Medical Council of India (MCI):** It has been established for ensuring uniform and high standards of medical education in Bharat. The Council "grants recognition of medical qualifications, gives accreditation to medical colleges, grants registration to medical practitioners, and monitors medical practice in India"[xiii].

Additionally, there are a large number of professional organizations which interact with regulatory agencies and provide valuable inputs to them in areas of education related to their expertise. Some of these organizations are Bar Council of India, Dental Council of India, ICAR, Pharmacy Council of India, and National Council for Teacher Education, etc.

Collectively, these regulatory bodies have the following goals.

- Develop and enforce standards for setup, and running of educational institutions.
- Develop and enforce standards for a variety of academic programs being offered by approximately 38,000 educational institutions in the country.
- Constantly upgrade these standards so that they remain aligned to our needs, and in tune with prevalent times.
- Develop and enforce policies to promote research, new knowledge creation and innovation.
- Develop and enforce policies which promote access of higher education cutting across social, economic, geographic, and gender boundaries.
- Ensure transparency in operations of educational institutions, and prevent fraudulent, unethical and illegal behaviour of specific educational institutions.

These agencies certainly have an onerous task cut out for them. They are expected to meet all of these objectives effectively. However, as explained in the section titled "Overview of the Challenges" of this report, they have not been able to meet their own stated objectives. This is attributable to following three key reasons.

- **Acute shortage of resources and expertise:** The scope of work cut out for these bodies is extremely large. These regulatory bodies have oversight on approximately 38,000 educational institutions which collectively offer 39 types of degrees and diplomas in as many as 187 areas of specialization[4]. Effective regulation in such an immense context is only possible if these organizations have sizeable human resource pool that is not only familiar with diverse subject areas, but also competent in framing and implementing expertise-specific regulations. However, none of our regulatory agencies are equipped with such a sizeable pool of human resources.

[4] For data on number of types of degrees and diplomas offered, and areas of study, refer Appendices A and B.

For purposes of illustration, we now evaluate the human resources available with the UGC and NAAC. Table 10 provides a breakup of this pool available with the UGC.

Table 10: Human Resources Available with UGC [5]

Members	Group A	Group B	Group C	Canteen	Total
12	63	255	135	13	479

The UGC is run by a body of 12 members headed by Chairperson. Most of the policy decisions of the Commission are taken by this body. However, none of these members is a full-time employee of the Commission. To expect such a small body of individuals who devote a very limited number of hours during their tenure as Commission members on developing higher educational regulatory policies is being totally unrealistic. These ill-thought decisions are subsequently communicated to the Commission's staff for implementation purposes. The efficacy of this implementation process is also questionable, as this ultra-small 479-member body (in 2012-13) is primarily made up of Group B, and Group C employees.

A quick scrutiny of human resource pool of National Assessment and Accreditation Council, Bharat's premier accreditation organization reveals similar structural limitations there as well. The Council is run by 5 different committees: General, Executive, Academic, Appeals, and Finance. Just as in UGC, members serving these committees have their primary professional responsibility lying elsewhere. This is reflected in the number of their meetings for the year 2010-11, which was: 2 for General, 2 for Executive, 1 for Finance, 3 for Appeals, and four for Quality Assessment[6]. It is through these meetings, that the NAAC makes takes important decisions. The decisions of these committees are implemented by NAAC's bare-to-the bones skeletal staff which is made up of 10 employees in its "academic" wing, 16 individuals performing low-end administrative tasks (including 2 drivers and one assistant), and one consultant. The consequence of such a serious resource deficiency reflects in the fact that till 2010-11[7] there were only 168 universities, and 4618 colleges accredited, and over 80% of colleges remained untouched by accreditation process.

- **Conflict of interest within the organization:** Many of these organizations have multiple areas of focus. For instance, the mandate of UGC has three key dimensions: funding, developing-maintaining-enforcing teaching standards, and coordinating between states and the centre. Execution of these multiple dimensions of its responsibility quite often leads to situations involving conflict of interest. In particular, its role as a regulator is naturally in conflict with its role as a funding agency.
- **Overlap of "jurisdiction" between various organizations:** As of today, the total number of regulatory organizations and professional bodies exceeds several dozen. Most of these bodies are statutory in nature, and further, most of them were created post-creation of the UGC. However,

[5] Source: UGC Annual Report, 2012-2013, p. 27
[6] NAAC Annual Report 2011-12, p. 85.
[7] NAAC Annual Report 2011-12, p. 3.

a very large number of newer organizations do not differentiate their roles vis-a-vis the UGC in clear terms. This leads to serious problem of "jurisdiction overlap", which in turn makes the overall educational system lethargic, unresponsive, and also nourishes widespread corruption. The following table provides a glimpse of some of such overlapping jurisdictions.

Table 11: Statutory and Regulatory Bodies with Overlapping Jurisdictions

Name	Overlapping Jurisdiction with Other Bodies
UGC	Several other professional councils, and Distance Education Council (DEC)
AICTE	UGC, DEC, Pharmacy Council of India (PCI), Council of Architecture (CoA), and state councils for technical education
CoA	AICTE
MCI	State medical councils, DEC, and UGC
PCI	State medical councils, and AICTE
Dental Council of India	Health ministry
Central Council of Homeopathy	State councils
Central Council of Indian Medicine	State councils
ICAR	UGC
Bar Council of India	State bar councils

Note: Adapted from Table 12 "Higher Education in India – The Need for Change", Pawan Agarwal, 2006.

6. The Way Forward

Our analysis shows that all the three instruments, which Bharatiya educational policy makers have relied upon to drive better quality, wider and deeper access, intense research and innovation activities, and relevant education, have failed to yield desirable results. Hence, marginal tinkering of the system will neither help further our national goals, nor will it fulfil the aspirations of the youth. Rather there is a clear need for significant restructuring of our higher educational system. The design of this new structure should have following features.

- People centric: It should ensure that affordable quality education is available to all.
- Policy driven: Such a structure will promote transparency, inhibit corrupt practices, and eliminate fraudulent behaviour. This structure will also eliminate capitation fees, and other hidden fees.
- Scalable in design: This will help meet our needs even if Bharat's GER reaches 40%.
- It should not necessarily rely on provision of funding from the government.
- It should provide sufficient emphasis on value education.

With these goals, we propose a structure that places student at its centre, and which accounts for the needs of all the stakeholders: students, teachers, administration, employers, parents, and the society. Here are the key elements of such a structure.

1. **Democratization of Higher Education:** We are a poor country. In our K-12 education system, approximately 60% of the students attend government run schools [xiv], due to primarily economic reasons. Most of these students cannot afford higher education. To address this need, the government subsidises higher education. However, such an approach has not worked for following reasons.

- Despite subsidy, higher education even in governmental institutions is not free. This is because the amount of subsidy is not sufficient to ensure universal free education. This is particularly true in a large number of state universities[xv], where over 50% of the running costs come through tuition fees.
- Living expenses continue to rise, and constitute significant fraction of overall cost of higher education.

Thus, higher education is by-and-large unaffordable for most of the poor students. To address this problem, central and state governments have been subsidizing education. However, these subsidies are not at all sufficient in making higher education affordable to the poor. Instead, these subsidies only help reduce costs of higher education for students from middle and affluent classes. Thus, the current system limits access to higher education to those who do not have the ability to pay for it. To address this severe flaw, we propose the following.

- **National Freeship Program for Poor and Meritorious Students:** Despite the presence of a large number of students, who are unable to pursue higher education due to economic reasons, our country does not have an impactful scholarship program for the poor. In contrast, a large number of countries including UK, USA, Germany, and Japan ensure that poor students are not deprived of

higher education. In the USA, federal and state grants in excess of 60 billion dollars are used to support education needs of over 10 million poor students[xvi]. On the other hand, Bharat spent approximately 352 crores on scholarships for 2012-13. This amounts to a per capita support of mere 164 rupees. Further, a significant fraction of these funds are targeted towards minority students, students from J&K, etc.

Clearly, there is a need for a strong National Freeship Program, which provides for all the costs of higher education for at least 10 lakh poor students annually. The benefits of such a program would be:

- Increase in GER from current value of 21.1% to 25% within a span of mere 4 years.
- Within a period of four years, over 40 lakh households, made up by over 1.8 crore individuals[8], will for the first time in their histories, have a member in their house pursuing higher education.
- Students will have the flexibility to use these funds to get admission into any accredited college of their choice. Such flexibility will motivate colleges to provide for quality. Thus, the proposed program will also act as a performance-driven funding scheme.
- Entry of poor students in higher educational institutions means a more diverse student population on campuses, which will indirectly promote innovation.
- Most of our educational institutions are not running to their full capacities. A larger student population will enhance the utilization of their assets.
- In the medium term, such a program will help the country capitalize on our demographic dividend.
- This program will help us discover a large number of bright students who would have otherwise remained in oblivion due to economic handicaps.

Next, we evaluate the financial viability of such a freeship program. Assuming that annual costs for higher education including living expenses are between 1-1.5 lakhs, such a program will need 10,000 – 15,000 crores in the beginning year, and 35,000 – 52,500 crores annually after three years. These monies could come from central, state and private sources, perhaps in a 40-40-20 proportion. This would be an additional 0.30% to 0.45% public expense on education in terms of Bharat's 2012-13 GDP. Appropriate positioning strategies will be needed to encourage state governments, corporate sector, and private individuals to contribute to the success of such a program. The program's design should ensure that freeship monies are used only for educational purposes, and that they are linked to student's performance.

- **National Fee Policy:** Currently, Bharat has no national fee policy. This has led to several undesirable situations, and some of these are listed below.
  - Provision of central and state grants to academic institutions leads to subsidization of education for affluent sections of the society, while poor students remain untouched by higher education.
  - Many institutions, particularly self-financed ones, charge large amounts of monies on diverse grounds from students, all under ambit of "fees". Some of these are "bus-fee", "college development fee", "library fee", "extra-curricular fee", "computer fees", ... Many a times, a student learns about these "fee" components only after he has been admitted to an institution.

[8] Average household size assumed to be 4.5.

- During a student's program of study, fees can increase unexpectedly by unreasonable amounts.
- There are no clear norms as to what fraction of fees are reimbursable if a student opts to drop out in the middle of an academic year.
- There is a significant variation in amount of fee charged for the same degree program between two institutions.

A National Fee Policy, which addresses these questions will facilitate more financial transparency, and enable students to make informed decisions about their higher educational plans.

- **Democratizing Medical Education:** Bharat is in acute need of doctors. Compared to other BRIC economies, and developed countries, Bharat has lowest number of doctors on a per-capita basis. The following table illustrates this fact.

Number of Doctors for Every 1000 People								
Country	Bharat	Brazil	S. Korea	Russia	China	S. Africa	USA	Japan
Number	0.70	1.8	2.0	4.3	1.9	0.8	2.5	2.3

Source: http://data.worldbank.org/indicator/SH.MED.PHYS.ZS
Data for Brazil, S. Korea, Russia, China, S. Africa, USA, Japan, and Bharat correspond to years 2010, 2012, 2010, 2012, 2011, 2013, 2010, and 2012, respectively.

Further, some states and regions have far lesser number of doctors on a per capita basis than other states. This wide disparity is reflected in the following table.

Number of Registered Doctors (Per 1000 People) with Different State Medical Councils [9]

State/UT	No. Per 1000	State/UT	No. Per 1000	State/UT	No. Per 1000
Andhra Pradesh	0.74	Haryana	0.16	Orissa	0.40
Arunachal Pradesh	0.18	Himachal Pradesh	0.12	Punjab	1.39
Assam	0.61	Jammu & Kashmir	0.89	Rajasthan	0.42
Bihar	0.36	Jharkhand	0.09	Sikkim	0.99
Chhattisgarh	0.13	Karnataka	1.43	Tamil Nadu	1.20
Delhi	2.79	Kerala	1.17	Uttar Pradesh	0.29
Goa	1.91	Madhya Pradesh	0.37	Uttarakhand	0.33
Gujarat	0.77	Maharashtra	1.23	West Bengal	0.64

Thus, not only Bharat has a far less number of doctors on a per-capita basis vis-a-vis other peer countries, there are very significant regional disparities in terms of access to these doctors. Such a lack of access to doctors in large parts of Bharat has a significant adverse impact on health of Indians in vast regions. Further, such a disparity also increases the cost of medical services especially in regions where doctors are unavailable. Thus, we need to not only increase the number of doctors present in Bharat, but also ensure that the geographical spread of these doctors is even. One significant reason why there are far too fewer doctors in specific regions of Bharat is lack of access to medical education in these regions. The following table illustrates this acute disparity.

[9] Raw data on number of registered doctors for different medical councils obtained from data.gov.in/catalog/number-registered-allopathic-doctors-and-dental-surgeons#web_catalog_tabs_block_10.

Number of MBBS Seats in Different States (for every lakh individuals)					
State/UT	No. of Seats	State/UT	No. of Seats	State/UT	No. of Seats
Andhra Pradesh	7.4	Haryana	2.8	Orissa	2.0
Arunachal Pradesh	NA	Himachal Pradesh	2.9	Punjab	3.6
Assam	2.0	J&K	3.2	Rajasthan	1.9
Bihar	0.9	Jharkhand	0.8	Sikkim	16.5
Chhattisgarh	2.0	Karnataka	9.8	Tamil Nadu	7.0
Delhi	6.0	Kerala	8.5	Uttar Pradesh	1.6
Goa	10.3	Madhya Pradesh	2.1	Uttarakhand	4.0
Gujarat	4.9	Maharashtra	4.6	West Bengal	2.0

To address this disparity, we propose setting up of medical institutes attached to each district hospital. As per NRHM-2010 data, there are 605 district hospitals out of 640 districts in the country. These hospitals have a bed strength ranging between 75 and 500. Almost all of these hospitals have at least one OT, and 48% of these hospitals have an OT specifically for gynaecological purposes. Over 73% of these hospitals have laboratories. However, many of these hospitals are in serious states of disrepair and require significant upgrades. A national mission aimed at developing a medical institute which is attached to these hospitals will work wonders in following ways:

- It will democratize medical education very effectively.
- It will enhance the quality of our district hospitals, thereby making health care accessible to poor sections of Indians.
- It will reduce the cost of health care, as more doctors will become available across the country.

2. **Increased Facilitation and Compliance, and Reduced Regulation:** As discussed earlier, our higher educational infrastructure is highly regulated, but the agencies responsible for enforcing these regulations are significantly short of resources. Our regulatory system is complex, confusing, and all-pervasive. It breeds inefficiency, and corruption, while stifling initiative, and experimentation. Such a system should give way for a more relaxed and accommodative system, which emphasises more on facilitation, objectivity, and compliance. To achieve this, we propose the following:

- **Doing Away with the Affiliation System:** The affiliation system has outlived its utility. As explained earlier, this system dissuades colleges to innovate, reduces their accountability, and promotes mediocrity. Most importantly, the system facilitates entry of non-serious players in the education "market" since it does not require them to build them their own name in the world of academics. Further, such a system has rendered a large number of universities as mere "Controller of Examinations". The system also promotes administrative inefficiencies as many universities oversee hundreds of colleges spread over very large geographical area. Further, since each university has a jurisdiction over a specific geographical "service" area, the system of affiliation promotes monopoly and restricts competition. Clearly, such a system should be done away with. Specifically this would imply:
    - Universities need not be sole degree granting institutions. Educational institutions should have

the latitude to craft their own academic programs, develop appropriate curricula, and also grant degrees. Such an approach, coupled with a robust accreditation system (explained later), will drive each institution to continually excel and remain socially relevant. Better institutions will attract employers and thus more students, while institutions with shoddy performance will either have to improve or close down. Such an approach will drive enhanced teacher performance, continual curricula upgrades, and more transparency in college administration.

- A large number of college administrations may not be currently prepared to move to such a system right away. Thus, the de-affiliation process should be gradual. While new institution should be allowed to come into existence only if they are prepared to stand on their own, amongst existing institutions, larger ones should be required to become independent within 3-5 years, and smaller institutions may be required to de-affiliate within a period of 5-7 years.
- Arguments have been made that we could continue with the affiliation system if a separate body for conducting university-wide examinations is created. However, such an approach would not address concerns related to monopolistic practices of universities, unwillingness of colleges to improve their quality, lack of curricula innovation, and corruption.
- Relaxation of regulations will also pave way for opening up of specialized institutes and universities, both in private as well as public sectors. There is a strong need for such institutions particularly in areas of science and technology. Railways, defence, automobiles, aerospace, agriculture, etc. are some of the areas which could benefit from establishment of such specialized educational institutions. These institutions will provide "customized" human resources as well as promote domain specific research and innovation. Organizations like Indian Railways could significantly benefit from such institutes.

The Need for a Railway University

Indian Railways (IR) is one of the largest railway organizations in the world. Its trains run on 65,436 km of tracks, and pass through over 7172 stations. Last year, the IR transported 839 crore passengers, and carried 1051 million tons of freight. This mammoth organization is run by over 13.1 lakh employees, many of whom are engineers. Currently, there are not many universities which cater to the specific needs of organizations such as IR. To fill in this gap, the Central Government plans to setup four or five "Railway Universities" over a period of next few years. Similar initiatives could benefit other sectors of our economy as well.

Robust Accreditation System: The dismantling of affiliation system has to be coupled with the creation of a totally revamped accreditation system which is strong and effective. The current accreditation system is ineffective because Bharat's accrediting agencies lack in professional competence as well as resources. It is also ineffective, because the metrics and methodologies for accreditation are flawed. For illustration purposes, consider Table 11 which is used by the NAAC to accredit non-technical institutions on an A-B-C-D grade scale.

Table 12: Parameters Used by NAAC to Grade Institutions

Parameter	Universities	Autonomous Colleges	Affiliated Colleges
Curricula	150	150	100
Teaching/Evaluation	200	300	350
Research	250	150	150
Infrastructure	100	100	100
Student Support	100	100	100
Governance & Mgmt.	100	100	100
Innovations	100	100	100
TOTAL	1000	1000	1000

To assess a particular academic institution, the NAAC deputes a group of experts to visit the institution and determine its standard on the A-B-C-D scale. Such an approach is flawed for the following reasons.

- This approach classifies all educational institutions in three categories (universities, autonomous colleges, and affiliated colleges), and conducts evaluation at institutional level. It does not evaluate at finer levels, e.g. at departmental or academic program level. Thus, a university specializing in Sanskrit, and a general university (e.g. Rajasthan University) have to meet the same set of infrastructural, academic and research requirements.
- Most of our academic institutions, including universities, are de-facto teaching institutions. However, the current evaluation method places significant emphasis on research and innovation. For universities, current accreditation norms require doing more of research and innovation and less of teaching. Even affiliated colleges are expected to conduct significant levels of research activity. Such expectations contradict reality, and are actually driving poorer teaching standards without necessarily improving research and innovation. Further, such unrealistic expectations have also given birth to a large-scale industry producing spurious "journals", as well as fake "PhD" degrees.
- The current approach places more emphasis on infrastructural requirements, and not much on quality of teaching. Further, it assesses teaching quality through metrics on teachers' academic qualifications while placing little emphasis on metrics on student placement and performance in examinations.
- Our current accreditation process is robotic in nature. It relies on meeting certain requirements which are not well thought out. For instance its emphasis on publications has driven faculty members of publish in shoddy journals. Likewise, its emphasis on participation in international conferences has driven many institutions to organize fake "international" conferences.

The following table is a comparison of US and Bharatiya accreditation systems.

Table 13: Comparison of US and Bharatiya Accreditation Systems

Parameter	Bharat	United States
Philosophy	Standardization driven by numbers (robotic approach)	Assess institution against its stated objectives (promotes diversity of knowledge)
Funding	Government	Membership, and fees
Number	Some of the important ones are NAAC, NBA, and AB.	100+ (regional, national, specialized) (regional accreditation is considered superior)
Goals	Public funds linked with rating	Access to student based grants Credit transfer Prevention of fraud Access to other public funds
Assessment	Primarily of institution	Regional & national: for institution Specialized: for specific programs (1800+)
Coordination	Very little between agencies	Structured way of coordination – minimal overlaps

To address these challenges, we propose an accreditation system with following features:

- Accreditation should be optional. However, students receiving financial support from the government should be required to study only in accredited institutions. Similarly, government financial support should be available only to accredited institutions.
- Each educational institution should have a clear vision document which specifies its long-term and medium term goals. Accreditation process for an educational institution should be aligned to its vision document. For instance, accreditation norms for a liberal arts college which is primarily focussed on teaching as per its vision statement should be designed to evaluate its efficacy on how well this college does in terms of teaching liberal arts. "Benchmark" institutions for different class and type of academic programs should be identified and used as "guides" for other institutions with similar objectives. Perhaps, one template for a particular program as a sample and reference tool also needs to be developed.
- There should be strong focus on quality of teaching and employability parameters.
- There should be objective measures of quality as they relate to research, academics, facilities, infrastructure, etc.
- Evaluation criteria and outcome of each accreditation exercise should be public knowledge. This will help students, employers and funding agencies make more informed decisions regarding admissions, hiring decisions, and provision of funds, respectively.
- Accreditation process and agencies should be free from government control. These agencies should be run by professional bodies. For instance, the accreditation process for an institution's mechanical engineering department should be driven by a professional body run by mechanical engineers. This will ensure that academic programs remain current and relevant, and their evaluation norms are objective and well-defined.
- Key officials of these accreditation agencies should not hold important positions in academic institutions.
- Multiplicity of accreditation agencies should not be discouraged. This will help promote competition, and enhance their credibility. However, there should be severe penalties for proven cases of favouritism, vindictive behaviour, corrupt practices, and misrepresentation.
- Academic institutions should be encouraged to use accreditation parameters when making decisions related to admission of students and transfer of credits.
- Any accreditation agency and its key office-bearers should not be able to influence governmental funding decisions directly or indirectly.
- The accreditation process should encourage lateral entry of experienced people from industry into the teaching profession. It should lay down goals for such professionals so that they develop appropriate capabilities as teachers and researchers in 3-5 years post their entry into the teaching profession. Such an approach will help us find quality teachers who are aware of theoretical as well as applied aspects of their domains of expertise.

- Bharatiya economy is yet to reach its full potential. Given this, there is a strong argument that our educational institutions should run for six and not five days. This may be a consideration by accreditation agencies as they develop their norms.
- Absenteeism in classes is rampant on our classes. Sufficient student attendance in classes may also be considered as a norm by accreditation agencies.
- Presently, most of the senior faculty and top academicians aspire for important administrative assignments as directors, vice-chancellors, deans, members of UGC, heads of departments, etc. due to prestige and power associated with such positions. This has a negative impact on our country's teaching and research standards as the focus of senior academicians gradually gravitates away from core teaching and research activities. To rectify this perceptual problem, accreditation agencies should develop norms which implicitly encourage very senior faculty members continue with their teaching and research activities.
- Finally, the development of a robust accreditation system should be accompanied with dissolution of a large number of regulatory bodies including AICTE, NAB, UGC, MCI, etc. This will eliminate overlapping jurisdictions, and promote efficiency, and facilitate academic innovation and continual improvement.
- The scenario of medical education in Bharat requires special mention here. Medical education in Bharat is heavily regulated, both through state as wells as central regulatory agencies. Setting up a medical institute, especially a private one, requires a very long series of clearances. The procedure for getting these clearances is viewed with suspicion in general. Amongst all the regulatory agencies, the MCI is the most powerful, as it has the mandate to accredit medical institutes, establish and maintain standards for UG medical education, and registration of doctors with recognized medical qualifications. More than often, MCI has been mired in controversies. Further, medical education in general suffers from same deficiencies as suffered by general technical education, but only to a far more deeper levels. Further, medical education is exorbitantly expensive, partly because of its very nature, and partly because of excessive unfair regulatory practices which raise the real cost of running a medical college significantly. There is a serious need to devise a special strategy for raising medical education's overall quality and also making it more democratic. Finally, there is a serious need to assess if MIC as an organization and explore if it makes more sense to split up the organization along functional lines.

  Developing a credible accreditation system will require constitution of a team of experts with a clear mandate and sufficient resources. Perhaps, one exercise such a team may undertake would be to ask some of the best institutions to make statements of their strengths, how they evolved over the years, and where they would want to be 5-10 years from today. These data will help us develop good metrics as to what constitutes a "good" academic institution in Bharatiya context.

3. **Protecting Students against Fraud and Misrepresentation:** Many educational institutions have frequently been criticized for resorting to false propaganda, dubious promises, erratic increase in fees, charging of hidden fees, and other unethical and illegal practices. Due to this, a large number of students, mostly from disadvantaged backgrounds, lose out on money and opportunity costs and they have very few remedial options. There is a strong need to protect students against such fraudulent practices. This could be accomplished by setting up of state-level tribunals, which:

- Help students recover their losses including opportunity costs especially when a student gets duped into joining an academic institution due to false propaganda.
- Provide for strong penalties against false propaganda, false promises, unwarranted increases in fee, and charging of under-the-table fees.
- May refer cases involving egregious malpractices to criminal justice system, post addressing students' immediate concerns.

Such a regimen should be complemented by requiring all educational institutions to provide full and easily accessible disclosures about their fee structure, faculty profile, placement statistics, accreditation status, and all other information which will help students make informed decisions about their higher educational dreams. In this context, portals like KYC should be further strengthened and made available in all major Bharatiya languages.

4. **Focused Roles for Government and Self-Financed Institutions:** As shown in Table 9, and Fig. 3, much of the growth in higher education system is coming from the self-financed sector. This fact will continue to remain so in the foreseeable future as well. Further, it is highly unlikely that the government through its own funds will be able to materially contribute to capacity expansion needs of the country. However, despite these facts, the central and state governments have a pivotal role to play in area of higher education. The key elements of such a role are:

- Most self-financed institutions will remain as primarily teaching institutions in the foreseeable future. Thus, much of the research activities will continue to occur in governmental institutions. Thus, the government must craft strategies to encourage its institutions to rapidly evolve into top-notch research institutions. This is a critical national need particularly in areas of science and technology.
- Since financial viability is a key driver for the self-financed sector, there shall always be areas of knowledge with low "market potential" which will remain untouched by self-financed academic institutions. However, there might be a national need to develop expertises in several of these knowledge areas. For instance, energy technology is one such area in the present context. Such areas of study can only be developed by the government sector.
- Historically, the government has acted as a regulator and the approval authority for higher educational institutions. With changing times, this role has to give way to that of a facilitator, as well as an enforcer of diverse compliance requirements. This would mean that the government must facilitate the following initiatives.
    - Simplify processes and eliminate areas of overlapping jurisdiction.
    - Currently, it may take several years for getting approvals for setting up an academic institution. For this, the government should develop single-window clearance systems and shorten the approval process cycle to 3-5 months.
    - Eliminate policy discrimination between minority and non-minority institutions.
    - Eliminate policy discrimination between government and private institutions.
    - Ensure easy access to finance. Currently, rules pertaining to societies and trusts restrict capital

flow into private sector. For instance, World Bank funds used to set up educational institutions the world over cannot be used in Bharat because of these restrictive rules. Thus, these rules require careful scrutiny and appropriate amendments.

- Currently, many owners of private institutions tap into institutional profits for personal gains. This is in direct contravention of existing rules governing societies and trusts. These individuals are hardly ever prosecuted for their blatant violations of the law. Such restrictive laws should be relaxed, so that owners of private institutions may use moderate amounts of institutional profits for personal gains. In lieu of such relaxation, there should be aggressive prosecution of violators.
- There are many individuals who would want to invest in education sector for profit purposes. There is no reason why such investments should not be permitted. Appropriate rules need to be modified to promote such investments. Another way to attract investments would be consider education as a part of national infrastructure.
- While relaxation of rules is desirable to facilitate self-financed private institutions, care must be taken that surprise closures of these institutions do not happen. This is important as it will adversely affect the futures of enrolled students. One way of addressing such situations may be through mandatory creation of corpus fund by educational institution to support its operational expenses as it winds down.
- The average number of students studying in a Bharatiya college is between 500 and 600. This number is between 3000 and 4000 for American and European institutions. And the equivalent number for Chinese institutions lies in the 8000-9000[xvii] range. Due to this difference in size, Bharatiya institutions face several disadvantages. Some of these include high overhead costs, limited width of faculty expertise, insufficient utilization of human and capital resources, and lack of specialization in a particular area. Governments should craft policies which promote consolidation of academic institutions, and allow existing institutions to rapidly scale up their operations.

5. **Enhancing Teachers' Quality:** The challenge of improving teachers' quality is particularly severe in area of technical education. Further, poor quality of teaching in this area of higher education is directly influencing our national economic growth. Hence, in this section, we are first proposing an approach to enhance technical teachers' quality, and then later offer a more broad-based approach. A very large number of teachers in area of technical education have poor knowledge of the subjects they teach in their colleges. Further, their pedagogical styles leave much to be desired. Finally, they lack the motivation to improve their knowledge base, as well as their teaching style. To address such a challenge, we propose a five-pronged approach. These five dimensions are described below.

- **MOOCs:** We propose to develop MOOCs in subject areas which are same as those that are taught in most of the technical institutions. These MOOCs will be unique in following ways.
- While several MOOCs are already being offered by some educational institutions, most of these relate to subjects which may not necessarily feature explicitly as "subjects" or "courses" in formal curricula of an average technical college. Thus, there is a clear need for creating large number of MOOCs for most of the courses which explicitly feature in curricula of such

educational institutions.

- The proposed suite of MOOCs will target primarily the teaching community. Thus, while these MOOCs may be open to all students, those who are actually teachers in our Engineering institutions will have two key privileges. These are:
- They will be able to ask questions from MOOC instructors through structured interactions. Other students will not have this privilege.
- They will be evaluated continuously throughout the course duration through online quizzes, as well as through one mid-course written examination, and one end-course written examination. These tests will be conducted by the institution hosting the MOOC, which may be typically IITs, IISC and NITs. Post completion of this exercise, these students will get a formal certificate of completion of the course, along with a letter grade indicative of their performance in the course. This will propel teachers towards hard-work, since a person with certification of passing such a MOOC with superior letter grade, will have higher employability.
- Given that a very large number of our students are not sufficiently strong in English, we will have student-instructor interactions in more than one Bharatiya language in addition to English. Further, archived lectures of MOOC instructor may also be made available in other Bharatiya languages.
- Every MOOC lecture will be of a fixed duration and will be followed by at-least 15 minutes of real time for interactive Q&A session.
- The syllabus of each MOOC will be decided by a panel of experts with sufficient representation from average technical institutions. This will ensure tight alignment of the course material with the needs of these institutions.
- At the onset of each course, the instructor will provide a lecture-by-lecture schedule for the entire course. He will not have the liberty to alter the contents of the course.
- Post completion of each MOOC, there should be formal review of the course along three key dimensions:
    - How good the instructor taught?
    - Level of comprehensiveness in terms of coverage of subject topics.
    - Approachability of the instructor and his team.
- **Regulatory Push for Enrolling in these Courses:** Technical institutions should be strongly encouraged to hire MOOC certified teachers. Currently, our regulatory bodies have been pushing these institutions to hire PhDs for teaching positions. However, this approach has four limitations. Firstly, the country is not producing sufficient number of PhDs to meet the needs of our educational institutions. Secondly, most of the PhDs being produced are of questionable quality. Thirdly, despite getting PhD degrees, those who aspire to become teachers in technical institutions do not know the subject matter well enough, despite their PhD degrees. Finally, we must recognize that most of these institutions are more-or-less teaching institutions, and will continue to remain so in foreseeable future. Given this, the emphasis on a having a PhD degree for those aspiring to become teachers in these institutions is misplaced. Thus, we must focus more on ensuring that teachers are deeply

aware of the stuff they teach in their classrooms.

- **Post Course Evaluation:** The mandatory requirement that a teacher has to have a "Certification of Completion and Performance" in subject area he teaches will deepen teacher's knowledge base. However, that is no guarantee that he will strive to be a good teacher. Thus, we have to ensure that the teacher is motivated to not only enhance his knowledge-base, but also his teaching skills and overall professional attitude to teaching. This can happen if each of the certified teachers is evaluated, post completion of the MOOC via the performance of his students. In this regard, teacher-specific metrics should be generated which monitor his teaching effectiveness, albeit indirectly, by evaluating the performance of his students in their final examinations, which are in general conducted by technical universities. Continuous improvement in an individual's teaching effectiveness will reflect in improved performance of his students on a year-to-year basis. Such a continual monitoring of teacher's performance will also help teachers track their own performance, and make suitable amends to their teaching style and attitudes continuously. Finally, such continual improvement will also enhance student attendance in classes due to improved teaching style, as well as due to recognition of the importance of attendance from a teacher's perspective.
- **Performance Linked Compensation:** Teachers' compensation packages must be directly linked to their performance and certification credentials. Such a mechanism will motivate teachers to enroll into MOOCs and earn good grades in the same. It will also motivate the teachers to get certified in more than one course, to increase their employability in the teaching profession. Finally, it will give them a reason to continually improve their teaching methods and teaching style.
- **Disclosure Requirements:** Each academic institution should have a complete disclosure of how many certified teachers they have on their staff. This information should be available on the Web. Details of the disclosure should include the number of certified teachers in each department, subjects taught by certified teachers, meta-data on letter grades, and metrics on continual improvement in teaching effectiveness. Such disclosures will yield following benefits for employers, prospective and existing students, college management, and accreditation agencies.
    - Prospective students will be able to make more informed choices regarding their higher educational goals and roadmaps.
    - Employers will be able to target colleges with quality teaching more precisely.
    - College administration will use improved teaching standards as a tool to attract more employers, which in turn will increase the demand for their programs.
    - Accreditation agencies will be able to gauge teaching quality at institutional, departmental, and academic-program levels objectively. This will help them develop suitable tools for accreditation processes.

6. **Curricula Innovation:** Our curricula need significant upgrades to address the challenge of low employability of our graduates. It has become disconnected from our needs, culture and civilization. Our curricula should also be an enabler for our languages. And finally, it should be designed in such a way that the divide between humanities, sciences, and technology gets bridged. To accomplish this we need to do the following.

- **Core requirement:** All undergraduate programs should have a core course on "Knowledge Traditions", as well as "Literary and Linguistic Traditions" of our country. This will help our students explore further and beyond while staying connected with our ethos, needs and culture. Such an initiative will also equip our students with powerful tools and perspectives that will give them competitive advantage internationally.

- **Social sciences:** In this document the term "social sciences", stands for political science, human geography, demography, sociology and economics. Our current content and approach in the teaching of these sciences promotes simply awareness of diverse ethnicities, groups, and identities. Such an approach for analyzing societies promotes division rather than harmony, and separation rather than unity. In contrast, there are Bharatiya textual traditions which can serve as alternative powerful tools for understanding our societal evolution over the ages. These *sutras*, *smritis*, and *nibandhas*, which have continuous, cumulative, attested, voluminous textual corpus, offer unique and almost universal perspectives about jurisprudence, role of state, duties and obligations of an individual. With them, we can develop useful methodologies for analyzing contemporary and past societies. They provide an alternative framework to analyze any society. Such alternative analytical tools will be much valued because the current Cartesian tools are yielding only limited dividends in terms of our understanding of societies. Hence, in addition to having an understanding of contemporary Cartesian sociological tools, our students should also be grounded in such integrative analytical frameworks. In this way our students will have more than one tool to understand all the societies. Our current social science scholarship should also address pressing issues such as water, power, environment, women, rural women entrepreneurship, etc. Much of the work in these critical areas is being done by NGOs. Also, there is also a growing need to study other societies and not just "us". This is becoming increasingly important with Bharat's growth as an economic and military power. Finally, all social science analysis should be data driven. This will make our works objective and globally acceptable.

- **Humanities:** In this document, the term "humanities" refers to study of languages, literature, philosophy, religion, musicology, history, anthropology, archaeology, communication studies, classical studies, linguistics, law, and semiotics. Curricula innovation in these areas of study requires development of bilateral relationships between humanities and sciences, and also adding the usage Bharatiya analytical and epistemological frameworks for each of these subject areas. While developing bi-directional humanities-science linkages will help humanists make assessments using objective and reality-based metrics, it will sensitize hard-scientists and technologists to the context and needs of our society. Further, students should have a firm background in specific knowledge traditions pertinent to their fields[xviii].

- **Medicine:** A very large number of Indians depend on Ayurveda, Siddha, Unani and other indigenous medical systems for their time-tested herbal base, economy and access. Further, there is very large corpus of credible textual material that informs us about usage of various native herbs and plants for treatment of diverse ailments. Also, there is a growing trend across the globe to have a more integrated view of health, and a more comprehensive approach for diagnosis and treatment. Finally, medical technology and health care has to become far more affordable. Thus, we propose

exploring the feasibility of having an integrated syllabus for medicine, which draws best elements from all schools of medicine.

- **Science and technology**: Students of science, and technology should be offered electives on *nyaya*, i.e. the science of logic, as well as *darshana*. Numerous Western scientists have developed fresh perspectives in areas of quantum physics, and relativity through *darshana*. There is no reason why such advantage should not be available to our students as well. Further, certain Bharatiya disciplines may be particularly helpful for students of specific specializations. For instance, computer science students may significantly benefit by learning about works of Panini and other Bharatiya linguists. This should be encouraged. Finally, students of engineering and technology should be exposed to local industries and craft traditions through formal courses. Such integration will economically benefit the industry, and will help it become globally competitive, and technologically superior.

A Comparison of Firozabad Glass Industry and Corning Inc.

The Firozabad glass industry is a case in point. Its glass products have been famous in Bharat and abroad for centuries. Presently, the glass industry of Firozabad exceeds 2300 crores. It provides employment to 5-6 lakh people. And about half of the annual turnover is in terms of foreign exchange. However, much of this glass industry is low-tech in operations, and it hardly produces any super-speciality products. In contrast, the US-based Corning Inc., which started in 1851 with fairly humble background is a world-leader in areas of ceramics and refractories. It produces several products which are of strategic importance to the United States. Its product line includes glass for LCD and OLED displays, ceramics of strategic applications, optical fibers, mirrors for space telescopes, etc. Its annual revenue is 60,000 crore rupees, but Corning provides employment to only 34,000 people worldwide. Can we have an educational policy which helps evolution of Firozabads of today into Cornings of tomorrow, without necessarily destroying their ability to create large number of jobs?

Sources: http://www.aigmf.com/International-Seminar-Firozabad.pdf
Wikipedia

- **Strengthening of Languages:** The English Education Act was introduced in Bharat in 1835. It has been 180 years since then. Over this period English has emerged as the predominant medium of instruction of education for almost all higher education programs. Despite such widespread dominance of English over all Bharatiya languages, most of our graduate student population is still not comfortable in grasping and communicating complex ideas in English. Amongst 63 non-English countries, Bharat ranked 25th, i.e. between S. Korea and Japan, on the EF English Proficiency Index[xix] . Even this score is an overestimate of our English abilities as the participants were "self-selected" and the proficiency test conducted was "online". Similarly, Bharat ranked 24th, i.e. between Bangladesh and Iran, on the general training version of IELTS score. This test is jointly conducted by Cambridge English Assessment, the British Council and IDP Education Pvt. Ltd[xx] .

  This problem of weak English skills despite its absolute dominance over Bharatiya languages has only grown over last few decades. This is because GER for higher education has risen over this period primarily due to the entry of a large number of students with very weak English skills into the higher education system. Such a dominance of English is hurting our national progress in following ways.

- Firstly, the dominance of English as the medium of instruction has severely limited the grasp of students of what they study in colleges. This problem will only grow with time, as a much larger number of students from non-English medium students will enter higher educational institutions in coming decades. This trend will also adversely impact employability statistics.

- Secondly, the rapid displacement of Bharatiya languages from public space is breeding cultural insecurity, and is fuelling a very destructive version of language-based identity politics. A rising number of poorly employable youth will only strengthen such a politics.

- Thirdly, we are rapidly forgetting our numerous indigenous knowledge systems and traditions. These systems, which are accessible only through our own languages, have helped us over last several millennia in managing droughts, harvest water, produce employment through MSMEs, negotiate conflicts, conserve environment, etc. Their obliteration may lead to several massive ill effects; economic, social, cultural, and political.

- Fourthly, rapid decay of Bharatiya languages may lead to destruction of the very core of Bharatiya society. Languages are not merely means of communication. They also help us express our relationships with others, connect us with our past, and project our vision into the future. It is through a language's structure and etymology that our ideas and philosophies permeate into secular and sacred spaces.

  Thus, restoration of Bharatiya languages to the heart of our higher education system is a must for national progress. To achieve this, we propose the following.

- We must develop a comprehensive suite of online courses in all major Bharatiya languages. These courses should be produced by the best teachers in the country. Modern audio-video technologies should be used to achieve this goal. This will have an immediate remedial impact on the standard of our education. It will also generate employment for those who are specialists in Bharatiya languages.

- Our languages are losing their respect because they are not being used as medium of instruction at the highest levels. To rectify this situation, every academic institution must be required to offer academic programs at every level in at least two languages, one of them being a Bharatiya language.
- Teachers who opt to teach in Bharatiya languages should be entitled to additional remuneration. This will encourage teachers to teach advanced level subjects in Bharatiya languages.
- Educational, administrative and regulatory bodies must develop metrics to monitor the progress of Bharatiya languages in academic world. Access to funds should be linked to performance of academic institutions on these metrics.
- Ph.D. dissertations in Bharatiya languages should be only entertained if they are written in a Bharatiya language.
- New knowledge creation is central to any educational system. Policies should be set in place to handsomely reward those who write books on specialized areas in Bharatiya languages. Career prospects of authors should get enhanced if they make their professional contributions available in Bharatiya languages.
- Disciplines like law, agriculture, etc., which influences the lives of crores of Bharatiyas should be taught primarily in Bharatiya languages.
- There should be a cross-country network of robust translation bureaus. We must capitalize on advanced robotized translation technologies as well. Funds should be available for promoting research in areas of natural language processing, voice recognition, linguistics, etc. Promoting scholarship of "mother" languages including Sanskrit and old-Tamil will help in this endeavour. This will mean offering dual degree options for scholars, and requiring knowledge of appropriate languages for students of history, archaeology, computer sciences, linguistics, architecture, music, dance, theatre, languages, and literature.
- We must learn from the experience of European Union as to how they manage their affairs sans a single "link" language.

The question of languages cannot be comprehensively addressed within the limited context of "education policy". Rather, it requires a much larger frame of reference. Its successful resolution will have to touch areas as diverse as education, culture, administration, judiciary, economics, governance, commerce, industry, and media. However, in this document, we have addressed the question of language within the limited context of "education policy".

7. **Promoting Research and Innovation:** Even though research and innovation seem related, we really need two different strategies: one for promoting research, and another one for fostering innovation.

Research involves creation of new knowledge, and expansion of frontiers of human awareness. We propose the following steps to achieve this goal.

- Successful implementation of our curricula innovation strategy: This will expand the minds of students, imbue them with originality, and enable them to effectively connect with the realities of Bharatiya civilization.
- Strengthening of existing research centres: Many of our current research centres in areas of science, technology, humanities, and social sciences lie in neglect and disrepair. There is a pressing need to reinvigorate these centres through patronage, and funding support. Further, with self-financed sector now much larger than government sector, we should seriously consider providing research funds to the former as well. This will help self-financed educational institutions to evolve as research institutions.
- The quality of our research scholars especially in areas of technology and engineering leaves much to be desired. Further, many PSUs are crippled by lack of sufficient technical expertise. To address this challenge, PSUs should sponsor more candidates for PhD programs. This will not only enhance their technical competence, but will also increase the quality of PhD candidates, and expand the pool of technical specialists in the country.
- The government must raise the stipends for PhD scholars, especially for those working in areas of science and technology. Currently, the quality of students opting for Ph.D. program in these areas is by-and-large not up to the mark. This is because some of the best students opt for jobs post completion of bachelors and masters degrees. A higher stipend for PhD scholars in areas of science and technology will reverse this trend.
- The government must develop norms to facilitate higher remuneration packages to those faculty members who excel in research and innovation.
- We must have a network of libraries, connected through high-speed Internet. Such a network should facilitate online access to books, journals, manuscripts, etc. electronically.

The strategy for fostering innovation must have the following elements.

- Integration with local industry, crafts and traditions
- Presence of industry in Board of Governors of academic institutions
- Reducing the barrier between institution and society
- Access to higher education for all sections of society
- Internship programs
- Robust IPR regime and subsequent commercialization
- Promotion of entrepreneurship
- Appropriate courseware
- Encourage industry, with special focus on defence sector, to throw challenging and futuristic problems at academia

- Reverse engineering

8. **Value Education:** Value education can be a significant differentiator between Bharatiya and other educational systems. The need for such education is felt by all. However, not much has happened in this area, especially at higher education level, across the world. A key reason for this is that it is not easy to develop formal structures through which values can be effectively imparted to students. Here we propose a framework for promoting value education on campuses.

- Appropriate courses in civilization, ethos, and comparative studies should be made available to all students. The course material should cover our own textual and other intellectual traditions. These courses should also highlight the importance of all four *purusharthas*, and not just *artha* and *kaama*. Additionally, they should explain how concepts of family, marriage, respect for the elderly, knowledge, renunciation, teachers, women, environment and kinship, have helped our country in the past, and are critically needed for our future as well.
- Students should be encouraged to participate in community development programs.
- A suite of case-studies which highlight linkages between material success and values should be developed. Teaching such case-studies and having role models, particularly from the industry, as guest speakers should be promoted.
- No course content should inadvertently send messages to students which undermine important human values.
- Campus environment plays a significant role in shaping students' values. It should be designed to towards reducing availability of intoxicants, lack of punctuality, plagiarism, dishonesty, unreliability, discrimination, exploitation, harassment, etc.
- Teachers exert significant influence on students' values. There is a need of sensitization programs for teachers which encourage teachers to promote core human values on campus.
- Organizations like NCC, and sports should be actively promoted on campuses.

7. Closure

In this report we have offered a broad framework for Bharat's higher educational system, for re-invigorating it. Our recommendations lie along eight key dimensions: democratization, governance, compliance and regulation, sharpened role of government institutions, teachers' quality, curricula innovation, promotion of research and innovation, and value education. Our current higher educational system is centered around regulatory and governance bodies. Such a structure makes it insensitive to the needs of the two most important stakeholders in the overall higher educational system: the student and the nation. Our framework places students and the nation at the center, and everything is built around their needs. Going forward, we perhaps need to initiate the next level of exercise: developing the nuts and bolts of such a system, and putting in place an effective implementation strategy for the same.

Iti shubham.

8. Appendices

Appendix A

Number of Categories of Higher Education Degrees and Diplomas	
Undergraduate programs	10
Postgraduate programs	4
Master of Philosophy	2
Doctor of Philosophy	3
Diploma	10
Postgraduate diploma	4
Integrated programs	6
Total	39

Source: Indian Standard Classification of Education, MHRD, 2014, pp 23-26.

Appendix B

Number of Categories of Higher Education Degrees and Diplomas			
Field of Education	No. of Categories	Field of Education	No. of Categories
Area study	1	Arts	1
Commerce	2	Cultural studies	1
Defence studies	1	Disability studies	1
Foreign languages	5	Gandhian studies	1
Indian languages	11	Linguistics	1
Oriental learning	3	Religious studies	6
Science	19	Social science	16
Social work	1	Women studies	1
Agriculture	4	Criminology & forensic science	1
Design	2	Education	1
Engineering and technology	19	Fashion technology	1
Fine arts	4	Fisheries science	1
Home science	3	IT & computer	6
Journalism & Mass. Comm.	1	Law	5
Library & information science	1	Management	15
Marine science	1	Medical science	47
Physical education	2	Veterinary & animal science	2
Others	1		
Total number of categories:	187		

Source: Indian Standard Classification of Education, MHRD, 2014, pp 28-30

9. Endnotes and References

(i) 2011 World Population Data Sheet, Population Reference Bureau, p. 8

(ii) The Demographic Dividend: Evidence from the Indian States, IMF Working Paper WP/11/38, S. Aiyar, & A. Mody, 2011.

(iii) Educational Statistics at a Glance, MHRD, Government of India, p. 24.

(iv) 2011 World Population Data Sheet, Population Reference Bureau, p.

(v) Analysis of Budget Expenditure on Education 2010-11 to 2012-13, MHRD, Government of India, p. 9, 52, & 61.

(vi) UGC 2012-13 Annual Report, p. 249.

(vii) Higher Education in India: The Need for Change, Pawan Agarwal, ICRIER, June 2006, p. 31.

(viii) Education to Employment: Designing a System That Works, McKinsey Center for Government, p. 47.

(ix) Analysis of Budgeted Expenditure on Education, 2010-11 to 2012-13, MHRD

(x) As MHRD publication "Analysis of Budgeted Expenditure on Education 2010-11 to 2012-13" for the year 2012-13, the educational departments of states and center have spent 58.75 thousand crore rupees (BE) from revenue accounts. Revenue accounts made up over 98% of funds spent by these departments. Of these 58,750 crore rupees, over 37,690 crores were non-plan expenditures.

(xi) UGC 2012-13 Annual Report, p. 50, 54

(xii) http://www.naac.gov.in/aboutus.asp

(xiii) http://en.wikipedia.org/wiki/Medical_Council_of_India

(xiv) "Private Sector's Contribution to K-12 Education in India", Mar. 2014, Report by Ernst & Young & FICCI, p.10.

(xv) Higher Education in India: The Need for Change, Pawan Agarwal, ICRIER, June 2006, p. 28.

(xvi) Trends in Student Aid, College Board, 2014.

(xvii) Higher Education in India: The Need for Change, Pawan Agarwal, ICRIER, June 2006, p. 5.

(xviii)

Stream of specialization	Relevant Knowledge Traditions
Languages, and linguistics	*Shiksha*, *vyakaran*, *chanda*, *nirukta*, and appropriate Bharatiya language(s)
Architecture	*Vastu*
History	*Sanskrit*, and *dharmashastras*
Music, dance and theater	Theories of *sangeet*, *nritya*, and *natya*
Philosophy	*Darshana* (including Jain and Bauddha), *Sanskrit*
Law	*Nyaya* (the theory of logic), *anvikshiki* (the theory of inference)

(xix Education First – English Proficiency Index 2014 report.

(xx) http://en.wikipedia.org/wiki/International_English_Language_Testing_System

Hindu Education Board

707, Pearls Omaxe Tower – 1, Netaji Subhash Place, Pitampura, Delhi – 110034, Bharat
Contact: +91 11 45564441 / 26 / 27 | Email: info@hindueducationboard.org