

The Development of India's Higher and Technical Education Policy: Challenges toward the Realization of a Knowledge-Based Society

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Abstract

Since introducing substantial economic liberalization policies in 1991, India has pursued a steady path of economic reform through the attraction of foreign capital, and has dynamically restructured its economy. The previous image of India as a poor country has faded, and its development is now significant thanks to its soft industries. In particular, higher education in India has continued to transform the country's workforce into one of the world largest and most talented, on a scale akin to that of China. India's aim is to become a global source of knowledge and to create a system that will guarantee its competitive advantage for the next generation.

However, although higher education has expanded in recent years, the quality has declined. Surveys have reported that the majority of higher-education graduates do not meet standards of employability. In addition, the urban-rural wealth divide, gender inequality, social divides (caste and religious categorization), and low literacy rates are still huge problems.

Thus, this article focuses on higher education, and particularly the technical education policy in India, which has seen some of the most significant growth among developing countries in recent years. The article examines which policies and initiatives have been put in place to develop India's workforce, with the aim of realizing a transition in the country towards a knowledge-based society.

KEY WORDS: employability, adult literacy, polytechnics, gross enrolment ratio, vocationalization, knowledge society, skill development, lifelong learning

1. Introduction

India is one among the countries having the highest number of higher education institutions, including technical education institutions, in the world surpassed only by the United States and China. Higher education is the most powerful tool to build a knowledge-based society. It helps people reflect on the critical social, economic, cultural, and moral issues facing the nation and contributes to national development through dissemination of specialized knowledge and skills. As

the apex of the education pyramid, higher education plays a key role in producing quality teachers. The challenge, however, to link higher education with the constantly changing needs and opportunities of contemporary society and economy, is an increasingly important issue. Strengthening a linkage between higher educational institutions and the society has become one of the basic missions of universities.¹

In this article, therefore, the emphasis is on recent changes in the field of higher education from the economics perspective of human resources development, i.e. development of employability skills, within policy development.

2. Research methodology

The research is based on a review of various relevant literature and published resources, including annual reports from the Indian government, along with news releases, articles, and websites. The paper also includes personal research notes created and data primarily drawn from interviews with professors and researchers during a field visit conducted to India in 2016.

3. India's higher education at a glance

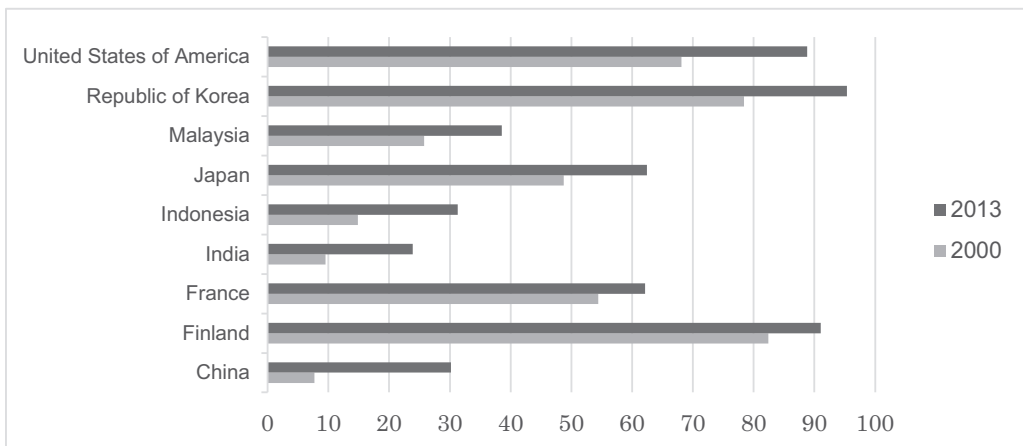
3.1 Number of higher education institutions²

At the time of India's independence, there were only 20 universities and 500 colleges in the country, with 210,000 students in higher education. In 2015, this had risen to 711 universities (46 central, 329 state, 205 state private, 128 deemed to be universities, and 3 institutions established under state legislation) and 40,760 colleges (MHRD Annual Report 2014–2015).

3.2 Gross enrolment ratio in higher education

Figure 1 indicates the gross enrolment ratio (GER) in higher education for 2000 and 2013.

Figure 1. Gross enrolment ratio in higher education



Source: UNESCO Institute for Statistics Database, calculations by the author

India's GER of 23.89 % in 2013 was far below 2013 world average of 32.883 %, as well as the average of other countries, such as China 30.16 % and the USA 88.8 % and Japan 62.4% in 2013 (UNESCO Institute for Statistics Database).

India's GER increased from 11.5% in 2006 to 23.89 in 2013, which shows steady growth. As per gender-wise, in 2012, GER was 20.8% for males and 17.9% for females, while in 2013, it rose to 22.3% for males and 19.8% for females. Thus, although improvements can be seen, a gender gap remains.

3.3 Student enrolment by faculty

The distribution of students across various faculties during the academic year 2014-15 is shown in Table 1. Out of the total students enrolled 25.5 million, 37.41% students were in a faculty of arts, followed by 17.59% in science and 16.39% in commerce/management. Thus, 71% of the total enrolment was in the three faculties of arts, science, and commerce/management, while the remaining 29% were in professional faculties, with the highest percentage in engineering/technology (16.27%), followed by education (teacher training) (4.57%), and medical courses (4.02%). Although agriculture and allied occupations are primary occupations in India, enrolment in agricultural courses was just 0.78%, and 0.11% in veterinary science.

The above figures show that the ratio of professional to nonprofessional enrolment was almost 1:3; hence, there is a need for policy changes that may reduce the disparity and increase the need to focus on "vocalizing" education. In particular, the lack of quality teachers and adequate teacher training mechanisms should be addressed.

3.4 Student enrolment by level

The enrolment statistics for the academic year 2014-15 reveal that the majority of students in

Table 1. Faculty-wise student's enrolment

Faculty-wise Students Enrolment 2014-2015		
Faculty	Total enrolment	Percentage to Total
Arts	9945700	37.41
Science	4675043	17.59
Commerce/Management	4357108	16.39
Education	1215442	4.57
Engineering/Technology	4326316	16.27
Medicine	1069911	4.02
Agriculture	207756	0.78
Veterinary Science	28017	0.11
Law	444613	1.67
Others	315531	1.19

Source: Ministry of Human Resource Development Annual Report 2014-2015

the higher education system were mainly enrolled at the undergraduate level, with students at this level comprising 79.9% of the total number of students in colleges and universities put together. The percentage of students enrolled in master's level (postgraduate) courses was 11.89%, while only a very small proportion of the total number of students—0.67%—enrolled in research courses. Similarly, only 1.57% of the total number of students was enrolled in a diploma/certificate courses (UGC Annual Report 2014-2015).

4. Higher education regulatory bodies

In terms of regulating higher education in India, there are three regulatory bodies: University Grants Commission (UGC), All India Council for Technical Education, and Council of Architecture—all of which are supervised by the Ministry of Human Resource Development (MHRD).³ In addition to its role of giving grants to universities and colleges, UGC advises central and state governments on the measures necessary for improving university education. It also frames regulations in areas such as the minimum standards of instruction and teacher qualifications.

The main objective of the Twelfth Plan (2012-2017) of UGC is to expand enrolment in higher education to the target rate of 30% GER through quality, inclusive, and relevant academic reforms. UGC has implemented a wide variety of programs for realizing the goals of higher education.⁴ However, its main focus is on expanding and improving access to higher education by increasing institutional capacity and enhancing intake capacity, promoting inclusive education through equal access to various groups in higher education, undertaking academic and governance reforms, etc.

The main objectives of the Twelfth Plan (2012-2017)

- a) To help increase GER from the level of about 15 % to 30 % by the end of XII Plan;
- b) Expansion of educational capacity in terms of number of universities, colleges and other institutions to meet the target of 30 % GER;
- c) To increase the enrolment ratio in districts that suffer from less access to higher education;
- d) To increase the enrolment of educationally backward groups and enhance inclusiveness;
- e) To promote quality and excellence;
- f) To promote relevant education;
- g) To promote the use of information and communication technology and focusing on other related issues;
- h) To undertake reforms in admission, examination and evaluation systems in the universities and colleges;
- i) To improve the work efficiency of the UGC through computerization in its internal working and inter-connectivity with educational institutions, including the improvement in human resources in the UGC;
- j) To improve the data base and research capabilities in order to strengthen the education policies and programs on sound basis and to create a proper institutional set up.

5. Issues and debate

While India is experiencing a mass expansion of higher education, a few critical issues have arisen. This section discusses the critical issues and analyzes the government's response and

action. The challenge is to link higher education with the constantly changing needs and opportunities of contemporary society and economy, which is seen as an increasingly important issue by universities and politicians.

5.1 Shortage of teachers in higher education

The Figure 2 shows the student–teacher (S/T) ratio in various countries. S/T ratio at all India in 2013 comes out to be 21.5%, which reveals that there is a need for India to take appropriate measures to improve the quality of its education.

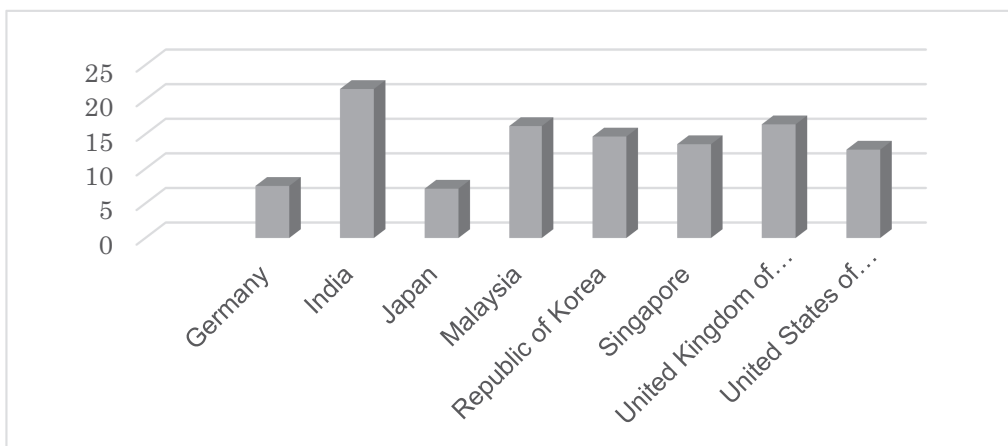
Smaller classes are often perceived as allowing teachers to focus more on the needs of individual students and reducing the amount of class time needed to deal with disruption, making classes less stressful; there is also evidence that smaller classes may benefit specific groups of students, such as those from disadvantaged backgrounds (Krueger 2002). Overall, however, evidence on the effects of differences in class size on student performance is weak. Nevertheless, there is evidence of positive relationships between smaller class sizes and aspects of teachers' working conditions and outcomes, such as allowing for greater flexibility for innovation in the classroom, and improved teacher moral and job satisfaction (OECD 2011).

5.2 Equal access

5.2.1 Socio-religious category

Enrolment in Scheduled Caste (SC) category comprises 12.47% of total student enrolment, whereas students belonging to Scheduled Tribes (ST) category constitute only 4.17%. Conversely, 31.65% of the total students belong to Other Backward Classes (OBC).⁵ Among teaching and nonteaching staff, share of ST and OBC are low in comparison to student share. There are more nonteaching than teaching staff in SC, ST, and OBC. Most nonteaching staff are in

Figure 2. Student/Teacher Ratio (Tertiary Education) 2013



Source: UNESCO Institute for Statistics Database, calculations by the author

SC. Details on this are shown in Table 2.

5. 2. 2 Representation of minority students

As shown in the Table 2, a total of 4.47% students are Muslim and 2.09% are from other minority communities. There are more teaching and nonteaching staff compared to students in the Other Minority category.

Social exclusion is a complex and multidimensional concept that has social, cultural, political, and economic ramifications (UGC Annual report 2014-2015). To make colleges and universities more responsive to the needs of disadvantaged social groups, UGC has planned to establish an Equal Opportunity Cell in these institutions to oversee the effective implementation of policies and programs for these groups, and to provide guidance and counseling in academic, financial, social, and other matters.

As shown in Table 2, there is wide disparity in the GER in higher education in terms of gender and community, and a significant disparity in Socio-religious category, i.e. STs, SCs and Muslims.

Table 2. Caste-Category wise % of students, teachers, and non-teaching staff

Caste/Category	Enrolment			Teaching Staff			Non-Teaching		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
SC	12.45	12.51	12.47	7.81	6.52	7.28	12.3	13.46	12.62
ST	4.21	4.12	4.17	2.08	1.89	2	3.55	3.67	3.58
OBC	31.05	32.42	31.65	25.3	26.32	25.68	25.77	26.77	26.04
Muslim	4.35	4.61	4.47	3.41	2.7	3.12	3.68	2.35	3.31
Other Minority Communities	1.76	2.51	2.09	2.51	5.19	3.6	2.24	4.26	2.8

Source: All India Survey on Higher Education (AISHE) 2011-2012

5. 3 Technical education and employability

5. 3. 1 Bachelor of Vocation

It has long been seen as necessary to align higher education with the emerging needs of the economy to ensure that graduates of the higher education system have adequate knowledge and skills for employment and entrepreneurship. UGC has launched a scheme on skill-development-based higher education as a part of college/university education leading to a Bachelor of Vocation (B. Voc.) This degree has multiple entry and exit options, such as diploma/advanced diploma under the Notification for National Skills Qualifications Framework (NSQF).⁶ As of 2015, 20 universities and 107 colleges had been approved under the scheme, and a grant of 12.12 million US dollars as released during the academic year 2014-15.

There is a target to train 10,000 learners each year under the B.Voc. Degree scheme. Support for 100 new institutions every year will be offered under this scheme to improve the employability of students through improved framing of curricula, training, and assessment.

Students completing the course are expected to meet industry standards.

India is among the countries with the lowest proportion of trained youth. 80% of new entrants to the workforce have no opportunity for proper skill training (UNESCO 2013). The Ministry's basic objective is to create at least 500 million skilled people by 2020 (UGC Annual Report 2014-2015). To this end, several new initiatives are to be implemented by various other key ministries, and new schemes oriented toward skill development are to be launched. This will include new industrial training institutes, polytechnics, vocational schools, and skill development centers. The initiatives aim to ensure that over 10 million students get vocational training annually. Significant support is also expected from the private sector, in terms of assisting not only with training but also employment opportunities.

Technical education will make a large contribution to the economic growth of developing countries by way of suitable manpower production according to the needs of industry, society, and the world as a whole (MHRD 2014-2015). Polytechnic education has therefore responded to the challenges of industrialization for self-reliance, as well as meeting international demands.

5.3.2 Role of polytechnics

Polytechnic education constitutes an important segment of technical education and contributes significantly to economic development. The aim of polytechnic education is to create a pool of skills based manpower to support shop-floor and field operations as a mid level link between technicians and engineers. Traditionally, polytechnics in India generally offered three-year diploma courses in conventional disciplines such as civil, electrical, and mechanical engineering. However, during the last two decades many polytechnics have started offering courses in emerging disciplines such as electronics, computer science, medical lab technology, hospital engineering, architectural assistantship, etc. In addition, many institutions are offering specialized diploma programs in areas such as leather technology, sugar technology, printing technology, etc. Many diploma programs are also being tailored to women, such as in garment technology, beauty therapy, textile design, etc.

5.4 Lifelong education and adult literacy

While India's higher education sector has expanded, a low adult literacy rate is limiting its development. Considerable progress has been made in the country's literacy rates, but these remain uneven across different states, districts, social groups, and minorities.

To know development in a society, literacy plays a major role in the economic development of a nation. Although India has raised its current literacy rate of 72% in 2015 from 12% at the time of Independence in 1947, it still lags behind the world average literacy rate of 84%⁷. Compared with other nations, India has the largest illiterate population. According to "2013/14 Education for All Global Monitoring Report" published by UNESCO, India has the highest population of illiterate adults at 287 million. Post-2015 goals need to include a commitment to make sure the most

disadvantaged groups achieve benchmarks set for goals. The government need to take positive measures to reduce the disparities by focusing on less educated areas and focused groups.

6. Graduate employment: creating a partnership between academics and vocationalization – A case study

Creating a fruitful and dynamic partnership between higher education and society is one of the basic missions of universities. Employable skills are required for all sectors of the economy, and their development can thus be seen as a priority for both vocational and higher education. At the higher education level, programs have been redesigned to incorporate more vocationally oriented content, such as internships, work–placement schemes, work–based learning, and work experience through internal or external opportunities, besides developing management skills to equip graduates for future careers.

During my field survey in India in 2016, I had the opportunity to visit the Delhi School of Economics (DSE), one of India’s top universities, to examine the employment situation of undergraduates and understand how the school develops students’ employability.⁸ In this section, the unique aspects of DSE, focusing on its innovative scheme of work–based learning and work experience and its aim of preparing students for future work, are highlighted.

At the DSE, students’ interactions with teachers, academicians, and peers from various fields of study exposes them to different perspectives, ideas, and cultures helping them gain a deeper insight into matters concerning the world. The programs of DSE focus on various aspects – in addition to acquiring fundamental core economic knowledge, its programs are designed to incorporate content that is more vocation oriented, such as developing teamwork, and there is a continuous initiative toward skill upgradation, stress management, and cross–cultural exposure (Bottom line 2015, Delhi School of Economics).



Delhi School of Economics, India (Taken by : Naomi Konishi, August 23, 2016)

Figure 3. Examples of Placement Cell Initiatives, Delhi School of Economics

Workshops on Technical Skills

- Workshop on Software
- Workshop on MS Excel conducted in association with Microsoft
- Workshop on careers in finance and working of financial markets
- Workshop on Consulting and Case Study Brainstorming

Soft-Skills Development Initiatives

- CV building session for resume building and polishing
- Intensive interview skills and group discussion (theoretical sessions, mock group discussions, with detailed performance analysis and feedback by senior management personnel)

Mentoring Initiatives

- A group of MA Final students took on the role of mentors for the incoming junior batch to serve as a guide for them through the placement process
 - Internship Experience Sharing Sessions were held wherein final year students shared their summer internship experience with the junior batch and addressed their queries.
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Source: *Bottom Line, Delhi school of Economics 2015*

6.1 Placement Team initiatives

DSE's Placement Team consists of highly motivated students who plan various placement activities to create opportunities for student growth through sessions and interactive workshops. The Placement Team has full support from the university (including the involvement of and advice from DSE's senior management personnel), as well as the university's internal and external network. As shown in Figure 3, various placement related activities conducted by the Placement Cell.

The uniqueness of this scheme lies in the fact that it is initiated by students. At the same time as students are evaluated, companies who would like to recruit them should also be prepared to effectively demonstrate the company's advantages over others. Therefore, both students and companies benefit from this scheme.

7. Conclusion

This paper reviewed the recent developments in the scenario of higher education in India, using various statistical data, and outlined the challenges facing India. In India, disparities prevail in terms of gender and social groups, and in the rural-urban divide. There is also a need for high-quality teacher training besides increasing the use of technology for distance education, since technology provide solutions to issues such as accessibility in remote locations and helps meet the needs of disadvantaged social groups. Appropriate policy implementation, and competition enhanced by private participation in education, should be the focus for a positive change.

This paper also raised the issue of the changing nature of higher and technical education. The ongoing revision of the relationship between higher education and the labor market requires a

“balanced holism between the economy-oriented view and the human-oriented approach of the knowledge society” (Nikolou and Papadakis 2003). In order to realize a knowledge society, there is a need to thoroughly examine the substantial issues and concerns as outlined above and introduce appropriate measures to resolve them.

Notes

- 1 For example, *World Conference on Higher Education* assembled at UNESCO Headquarters in Paris from 5 to 9 October 1998, stressed the importance and highlighted in one of its priority actions, that each higher education institution should define its mission according to the present and future needs of society.
- 2 The institutions have been broadly classified in 3 broad categories; 1) University and University level institutions, i.e. the institutions which are empowered to award degree under some Act of Parliament or State legislature; 2) Colleges/Institutions which are not empowered to provided degree in its own name and therefore, are affiliated/recognized with Universities, and ; 3) Stand-Alone institutions not affiliated with University, which are not empowered to provided degree and therefore run Diploma level programs.
- 3 Currently, the Ministry of Human Resource Development (MHRD) works through two departments, namely, the Department of School Education & Literacy, and the Department of higher Education. The Department of Higher Education & Literacy has set its sight on the “universalization of education”. While the Department of Higher Education, meanwhile, is engaged in establishing world class institutes of learnings with leading professors, and ample opportunities for research and skill development to ensure that the world’s largest skilled workforce is established.
- 4 UGC has decentralized its function by opening seven regional offices in the country in a phased manner since 1994, for easy access and speedy release of grants and for the implementation of various schemes and programs relating to the higher education sector.
- 5 Scheduled Castes (SCs) and Scheduled Tribes (STs) are among the most disadvantaged socio-economic groups in India. The 12th Five Year Plan focuses on the concerns of the poor, the Scheduled Castes, the Scheduled Tribes, Other Backward Classes, minorities, differently abled and other marginalized groups need to be addressed for more inclusive and sustainable growth.
- 6 The National Skills Qualifications Framework (NSQF) is a quality assurance framework which organizes qualifications according to a series of levels of knowledge, skills and aptitude. These levels are defined in terms of learning outcomes which the learner must possess regardless of whether they were acquired through formal, non-formal or informal learning.
- 7 Adult over 15 years + literacy rate. The data drawn from DataBank, the World Bank.
- 8 The term employability is used in different contexts and in different ways but the following definition may be appropriate to use in this article – “a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, community, and the economy” by Prof. Yorke (2004)

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