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Research Article

Higher Education and Research in India

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ABSTRACT

The world is transforming at a pace faster than anyone could imagine. The credit for this transformation goes to education and education alone. The modern system of education in India can be traced back to the times of the British advent in India. India is metamorphosing. Education in India has played a vital role in this transformation process. The development index of a country largely depends upon the researches carried out in a country. This paper deals with the expanding scope of higher education in a developing country like India. Research carried out in a country or a society is governed by its imperatives. Another factor that governs research is the general psychological makeup of a country. The sense and source of awareness amongst the masses; the importance of education prevailing amongst them; the knowledge that education and research can influence and metamorphose societies; the level of/and the seriousness with which education at the basic level is imparted and implemented greatly influence higher education and research. When the whole thing permeates to higher education only then a research oriented academic environment is created and nurtured. It is only then the fruits of research percolate down to the society and benefit one and all.The present paper focuses on the higher education and research scenario in India. It deals with the governmental planning and implementation of policies regarding higher education. The paper deals with the nodal and apex governmental agencies that play a pivotal role in higher education and research in India. It outlines the key governmental organisations and institutions that have played a vital role in the development of research in the country. The paper also deals with how the process of higher education and research can be augmented and boosted. What are the factors of governing good research? How scientific and industrial research benefit the common man.

EDUCATION AND ITS IMPERATIVES IN THE WORLD

The world is transforming at a pace faster than anyone could imagine. The credit for this transformation goes to education and education alone. The modern system of education in India can be traced back to the times of the British advent in India. India is metamorphosing. Education in India has played a vital role in this transformation process. The development index of a country largely depends upon the researches carried out in a country.

The nations of the world and the economies are governed by the educational policies framed in their constitutions. Till a few decades ago it was felt that only natural resources had to be preserved. The giant pool of human resource was grossly neglected owing to the fact that it was felt that it would take care of itself in a manner that a person would get education if he/she needed to seek employment. Such a premise was full of holes and became grossly responsible for the lack of development of that country. The human resource could not at any cost be neglected it was felt later, though late. The same situation was faced by India till very recently the time liberalisation process began showing its effects. Education was taken for granted and thought of the as a humble duty of the government to provide it at a subsidy and with whatever quality it could manage. There are few moot questions that need to be answered:

- How are other nations attempting to deal with the human resources pool and creating it?
- What are their priorities and imperatives?
- What are the resource constraints?
- How are they handling the so-called "knowledge revolution" in the present knowledge society?

All these and similar questions become pertinent when one looks at the world scenario in higher education. An idea of current thinking and developments can be derived from various reports on this subject:

1. **Human Development Report, 1999:**

"The real wealth of a nation is its people. And the purpose of development is to create an enabling environment for people to enjoy long, healthy and creative lives. This simple but powerful truth is too often forgotten in the pursuit of material and financial wealth." Those are the opening lines of the first Human Development Report, published in 1990. The tenth Human Development Report, published in 1999, focussed on the growing interdependence of people in today's globalising world. As pointed out earlier, the World Conference on Higher Education, 1998, provided a forum for a wealth of debates and exchange of views on the form of higher education for the next century: for whom, with whom, and why, for what kind of society and what kind of world. The Conference reaffirmed the need for "access" to higher education and "the concern for equity". Setting out the mission of higher education, it resolved that "beyond its traditional functions of teaching, training, research and study, all of which remain fundamental", higher education must "promote development of the whole person and train responsible, informed citizens, committed to working for a better society in the future".

1. **Higher Education in Developing Countries, 2000:**

Recently, the World Bank and UNESCO convened the Task Force on Higher Education and Society to bring together some of the world's foremost experts on education and development. Based on research and intensive discussion and hearings conducted over a two-year period, the Task Force has concluded that, without more and better education, developing countries will find it increasingly difficult to benefit from the global knowledge-based economy. The report, **Higher Education in Developing Countries**: Peril and Promise, published in 2000, presents a powerful message: higher education is no longer a luxury; it is essential for survival.

2. **Educating Americans for a World in Flux:**

The Commission on International Education of the American Council on Education (ACE) is a group that advises ACE on the development of policies and programmes in the international field and issues its own policy statements on important issues. In its document, **Educating Americans for a World in Flux**, it recognises that "without international competence, the nation's standard of living is threatened and its competitive difficulties will increase". It argues that unless today's students develop the competence to function effectively in a global environment, they are unlikely to succeed in the twenty-first century. It suggests that state and local governments and the private sector should support higher education as it reorients itself to these new global realities.

3. **Dearing Committee, U.K., Report:**

The report of UK's National Committee of Inquiry into Higher Education under Sir Ron Dearing, **Higher Education in Learning Society**, sets out a vision for the future development of education in the twenty-first century and says, "We need to invest in our people." It makes out a case for higher, education as a lifelong learning process and pleads for widening of access "to include those who have traditionally been under-represented in our colleges and universities". On financing of higher education, the report says, "investment in higher education is an investment in the future. It is therefore right that the state should contribute to the costs to help ensure the country's continuous economic competitiveness. But it is right, too, as the Inquiry concludes that the costs should be shared with those who benefit from improved and expanded higher education in terms of not just the employability but also the quality of their life."

The reports clearly bring out the fact that the developed world is reacting quickly, with education as a major political priority. Education needs to be addressed on top priority by all nations in general and the developing and under-developed nations in particular if they agenda of economic development is to be addressed in the real earnest. *Higher education is no longer a luxury; it is essential for survival.* It believes that high-quality human capital is developed in high-quality education systems. It is also true that even though the world as a whole is passing through a "knowledge revolution", the four key principles -quality, access, equity, and accountability - which have always been crucial in the development of higher education continue to be the guiding principles when planning for higher education for the twenty-first century**.** *Similar to learning higher education too is a lifelong process.*

Higher education and research now act as essential components of the cultural, socio-economic and environmentally sustainable development of individuals, communities and nations.

Indian Educational identity and demands - Balancing quality and quantity:

In the fast changing world the issues that are being faced by the Indian higher education system are enormous. Higher education in India is at a crossroads. It is true because our higher education system is facing greater challenges in the twenty-first century. This scenario has emerged because of certain developments over the past few years:

For the first time, India is recognised globally as a nation of potential which is providing value-added trained human resource at a premier level. Indian experts, educationists and academics are now persons who generate wealth and also are the backbone in many global sciences and technological revolutions. Indians have made their presence felt in the field of information technology (both in software and hardware), electronics, biotechnology, pure sciences and economics; in financial management and in fields related to humanities and social sciences as well.

Concurrently, it can also be noted that the employment opportunity patterns are also undergoing immense changes. Jobs in government and government supported/funded organisations are on the decline. Job profile in the industry too, is changing. The manufacturing sector is going through a sea change all over the world: with the emphasis being laid on downsizing, outsourcing of jobs and a new approach in managing of industries resulting in a decline in the workforce in core and allied support industries. This does not mean that such industries would be closed but that they would be operating under a decentralised and diversified structure, spread across the world in which only the best would survive. This requires a workforce that can come up with innovative ideas of product design, manufacturing and marketing, and organising the entire gamut of industry activities in a different manner. There will no longer be localisation of industry in any particular country but enterprises will be spread across different nations, globally.

Indian industry is also facing similar challenges. It is no longer a protected market but has to face global competition. In addition, firms have to enter the world market with quality products and competitive pricing in order to capture the local and global markets. They will, therefore, have to innovate. Innovate or perish is the dictum. Hence the job requirements are changing. Whether it is domestic industry or industry located outside India, both need skilled human resource. Meaning thereby, *the world will be looking for trained persons in all basic fields with a sound knowledge base in their core discipline and the ability to adapt to new demands.*

Apart from the manufacturing sector, the service sector is a fast-growing sector. It is projected that in the next twenty years, the sector would account for almost sixty to seventy percent of jobs world wide. Persons who are experts and/or innovators at the high end, skilled persons who can work in the low-value added segments would be the blue-eyed boys the world would be looking for. Hence, globally there is increasing demand for education in the pure science and technology sectors, social sciences and humanities, in economics and commerce as well as in utility sectors. It is in these areas that there is a shortage of human power and the gap between demand and supply is going to widen.

The developed world is already worried about the demand and supply in the gap in skilled manpower. The impact is clearly seen in recent moves by the United States, Canada, United Kingdom, Germany and many European nations to increase the work permit quota and initiatives taken by Japan, Korea, Malaysia and Australia to lower their visa barriers, accelerating the inflow of skilled human power from India. We must also realise that it is not only shortage that has made these countries open the doors to superior quality trained Indian human power which is important in its own right. The domestic market must not be forgotten. It must, once again, be emphasised that the job scenario is changing domestically as well. The universalisation of the job market and acceptance of Indian skills at the global level has opened up opportunities for the creation of new jobs within the country, particularly back office operations of multinational corporations. Moreover, the service sector in India is also witnessing robust growth. This would call for trained human power at various levels to fulfil our own demand. World demography is also changing. While in twenty years time, many of the advanced nations would have large percentage of senior persons, 45 per cent of Indians would be in their twenties. This means young Indians would be in demand in other nations. They would have more scope for competing in a global market as entrepreneurs or as service providers. This would open doors for more opportunities domestically as well. Thus, demographic change gives India an advantage but also poses a challenge. The advantage arises from the fact that those working abroad retain their links with the country and contribute towards its growth by sharing their knowledge and wealth. The creation of jobs within the country also fosters economic growth. The challenge that this poses is the demand for quality in higher education, for, in order to take advantage of this demographic change we need to produce trained persons who are at par with global standards.

India can face all such challenges only if higher education focuses on developing the research sector in different fields.

THE INDIAN RESEARCH SCENARIO

The research scenario in India presents a chequered picture – that of highs and lows, the good and the bad. Some institutions ands research centres and universities are achieving what was planned in their objectives but some are universities have let down the nation in terms of quality and quantity in research.

Scientific, mathematical, literary or economic research can be followed by the restructuring the university curriculum. The number of researches carried out should be limited, which may be made flexible in accordance with the need and demands of the situation and time. In other terms, the researches should be quality of other than quantity oriented.

In order to achieve this in India, the number of graduate and post-graduate students' output needs to be restricted. This can be achieved by diverting the non-deserving candidates towards vocational courses, helping them to pursue job-oriented courses for there livelihood as it happens in most of the developed countries. Only the deserving candidates should be allowed to pursue post-graduation and doctoral programmes, only then the research scholars can contribute to the respected field. Universities should aim at promoting higher research and not merely providing undergraduate and post-graduate programmes.

The moot question at this juncture is who will decide the importance of the research work? For this the Research Development Committees (R.D.C.s), entrusted with the responsibility of the approving the research topic should be made more accountable. The R.D.C.s should be composed of quality scholars from different universities and premier institutions from within and outside the country. The research candidate should be screened properly and seriously by the RDCs.

In all scientific and literary researches, it should be made mandatory for all candidates to make a presentation before the R.D.C.s and the academic committees to justify the topic and field of the research, and also their intent. In this manner a process of filtration of serious candidates from the non-serious ones can be initiated.

Factors That Encourage Good Research:

1. Academic environment of the University/Institution
2. Library and Reference section: Books/ Journals /Online library/Internet, Reprographic section.
3. Infrastructure facility.
4. Research Laboratories consisting of latest apparatus/equipment.
5. Availability of funds for the purchase of new equipments required for research.
6. University professor should be entrusted more with research-oriented work rather then merely teaching under-graduates and postgraduates.
7. Inculcation of a sense of pride and purposefulness among professors with a feeling that it is they alone who have the capability of the transforming the society through fruitful research.

Indian research scenario: The Indian research scenario has reached low ebb in a few universities in the countries owing to the fact the appointments of the Vice-Chancellors and professors have become more a political process rather than an academic one. Once the appointments are made by the political masters, academics take a back seat. Entire energy is diverted towards appeasing the political matters instead of influencing changes in the positive direction for the research.

Research Oriented Mind: In order that real and authentic research bear fruit, it is important that a research oriented talent be nurtured. It is hard to imagine a successful, competitive and sustainable creative research scholar in Indian Universities, unless we recognize the importance of a creative researcher.The ever-burgeoning process of nepotism and gradually patronising the non-serious researcher can be diminished through a concerted effort. Once these processes take a concrete shape and implemented, the serious researcher will not face frustration and the non-serious candidate will be kept at bay and not interfere with the actual research adversely.

Augmentation of the research process

Research in universities and scientific institutions are funded by the University Grants Commission (UGC) and the Council for Scientific and Industrial Research (CSIR) as well as other premier institutions like BARC, TIFR , NPL, ISS, Directorate of Science and Technology, DRDO, IITs, IIMs, etc. in India.

Institutions of Higher Education & Their Growth, Enrolment and Faculty

As on 31.3.2005, there were 342 Universities including 18 Central Universities, 211 State Universities, 95 deemed Universities and 5 institutions established under State Legislation and 13 Institutes of National Importance. There

were 17625 colleges, of which 5386 have been recognized by the UGC under Section 2(f) and 12(B) of the UGC Act.

In 2004-05, an estimated 104.81 lakh students were enrolled in the institutions of Higher Education as against 99.54 lakh in the previous year and the faculty strength was 4.71 lakh as compared to 4.57 lakh in the previous year.

The **UNIVERSITY GRANTS COMMISSION** is responsible for coordination, determination and maintenance of standards, release of grants.

Professional Councils are responsible for recognition of courses, promotion of professional institutions and providing grants to undergraduate programmes and various awards. The statutory professional councils are:

- All India Council for Technical Education (AICTE),
- Distance Education Council (DEC)
- Indian Council for Agriculture Research (ICAR),
- Bar Council of India (BCI),
- National Council for Teacher Education (NCTE)
- Rehabilitation Council of India (RCI)
- Medical Council of India (MCI),
- Pharmacy Council of India (PCI)
- Indian Nursing Council (INC)
- Dentist Council of India (DCI)
- Central Council of Homeopathy (CCH)
- Central Council of Indian Medicine (CCIM)

The UGC is the apex agency responsible for funding of Indian universities. The UGC has funds for quality research projects and a good number of research projects do get approved but more serious candidates also need to pursue the UGC fo4r approval of quality projects.

Funding

UGC has no funds of its own. It receives both Plan and Non-Plan grants from the Central Government to carry out the responsibilities assigned to it by law. It allocates and disburses full maintenance and development grants to all Central Universities, Colleges affiliated to Delhi and Banaras Hindu Universities and some of the institutions accorded the status of 'Deemed to be Universities'. State Universities, Colleges and other institutions of higher education, receive support only from the Plan grant for development schemes. Besides, it provides financial assistance to Universities and colleges under various schemes/programmes for promoting relevance, quality and excellence as also promoting the role of social change by the Universities.

The details of the grants provided by the Government to UGC during the IX Plan and X Plan both under Plan and Non-Plan, are as under:

IX Plan

(Rs. In crores)

Year	Plan	Non-Plan
1997 – 1998	352.10	545.00
1998 – 1999	360.35	1009. 00
1999 – 2000	376.00	975.00
2000-2001	435.00	1000.00
2001-2002	467.78	1020.68

X Plan

YEAR	Plan	Non-Plan
2002-03	559.76	1100.00
2003-04	516.75	1132.30
2004-05	719.75	1182.85
2005-06	374.41 (upto 31.8.05)	609.17 (upto 31.8.05)

Tenth Plan and the UGC

In general objective of the Tenth Plan with regard to education is to achieve a profound transformation of education in order that it becomes an effective promoter of sustainable human development and, at the same time, improves the relevance with the world and achieves quality in teaching, research and business and community extension functions, including lifelong learning.

The specific objectives of the Tenth Plan relate to:

- The Relevance of Higher Education
- Quality, Evaluation and Accreditation
- Research and Development
- Outreach Activities in Business and the Community and Lifelong Learning
- The Knowledge and Use of the New Information and Communication Technologies
- Management and Financing
- Export of Higher Education and Re-orientation of International Cooperation.

It may be noted that the UGC has budget allocation for Research and Development.

CSIR

The same is the case with CSIR regarding scientific and industrial research. Similar problem like non-availability of serious research candidates ails scientific research. With a veritable boom in privatization of education and mushrooming of the self-financing engineering and other colleges, students opt for B. Tech. degrees. The industry and the market have gained strength but what has got adversely affected is basic science research and applied science. It is becoming increasingly difficult day-by-day to find real good post graduates and researchers in basic sciences like physics, chemistry, life sciences, etc. as a result there is dearth of research scholars in the actual scientific fields. In order to fight the malaise setting into the research scenario in India there is a real need for restructuring the education policy.

Privatisation process began in the west but not at the cost of basic sciences and research. Its distorted and half-cooked version has been adopted in India to suit the needs of those educationists who do have any academic intent but solely look at education to earn money through "chimneyless" factories – the so called educational institutions.

Central Government is responsible for major policy relating to higher education in the country. It provides grants to the UGC and establishes central universities in the country. The Central Government is also responsible for declaration of Educational Institutions as 'Deemed to be University' on the recommendation of the UGC.

Presently there are sixteen (18) Central Universities in the country. In pursuance of the Mizoram Accord, another Central University in the State of Mizoram is planned. There are 99 Institutions which have been declared as Deemed to be Universities by the Govt. of India as per Section of the UGC Act, 1956.

State Governments are responsible for establishment of State Universities and colleges, and provide plan grants for their development and non-plan grants for their maintenance. The coordination and cooperation between the Union and the States is brought about in the field of education through the Central Advisory Board of Education (CABE).

Special Constitutional responsibility of the Central Government: Education is on the 'Concurrent list' subject to Entry 66 in the Union List of the Constitution. This gives exclusive Legislative Power to the Central Govt. for co-ordination and determination of standards in Institutions of higher education or research and scientific and technical institutions.

REMEDIAL MEASURES & SUGGESTIONS

Industrial Funding

Industries are the one which make maximum benefits from researches that are pursued at universities and institutions either by way of the use of technology or by the utilization of manpower produced by them. The industrial sector draws profits from this process. The moot question is what is the industry given back to the alma maters?

Here the question is not of industrial funding of the universities but that of :

1. Purchase of technologies at an appropriate cost.
2. Funding of research cells of the universities and colleges.
3. Providing of equipment support to the universities and colleges. In case the industrial sector agrees to the funding or supporting or laboratories in universities and colleges, then adequate tax benefits or some subsidies could be worked out in coordination with the government and the finance ministry. A policy needs to be developed in this connection.
4. It may even be made possible that industries open their "Chairs" in university or colleges where fruitful and worthwhile research can be pursued.

In this manner the industry gives in return something to those that are the nurturing grounds for research. Big industrial units already have their own research units to support their industry. The research carried out there caters to the immediate demands to suite their products and the market.

The other way could be by providing scholarships to promising research scholars. This would encourage scholars to pursue research with much greater intent and make them a part of transformation process of the society and the nation.

When industrial houses can fund the elections in India, they can also provide funds for the development and reinforcement of the scientific temper and scientific research in university and colleges. While doing so the funding industrial units have a right to ensure optimum utilization of the funds they provide and monitor the progress but not to the extent that the process assumed and interfering posture. They must leave it to the wisdom of institution where to use the funds. Here, it is important to judge the intention and the earnestness of the institutions that seek industrial funding.

This could be developed on the same pattern as that of the funding of NGO's by the industrialist for literacy/health awareness, environmental awareness etc. In such instances there is a mechanism to monitor the correct utilization of funds. The same could be applied to the development and support of the scientific research in universities. Such and effort would certainly benefit the society and the nation. Universities in India can also sign memorandum of understanding (MoU) with foreign universities for scientific research. Some universities and institutions do have research collaborations with foreign countries. Once this process sets in, serious research scholars would be drawn towards scientific research in different areas. If the (MOU) could state that top ten research scholar would be allowed to pursue research in the foreign industries, then this could act as a boost scientific and industrial research scholar.

An example that could be taken up is that of **Development Partnership in Higher Education** (DELPHE). It is a £ 15 million opportunity for higher education to tackle poverty. (DELPHE) will be help established partnerships between the U.K. and 15 developing countries including India with seed fund of 15 million pounds committed by the U.K. Government (Connecting, British Council, July 2006, P-18). Welcoming the imitative, David Green, Director-General of the British Council said: *"Partnerships between the U. K.'s higher educational institutions and their counterparts in the developing world have a proven track record in undertaking imaginative research and providing capacity building solutions in areas such as health, education and science ..."* (Connecting, p. 18).

Institutions and universities which set the goal for initiatives for research and development, knowledge sharing, problem solving research and other activities will contribute towards achieving the UN Millennium Development Goals.

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