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University-Industry Linkage & Development of Higher Education: A Study about Faculty Perception

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Abstract: Higher education in India has expanded enormously since independence and enlarged in size but, this enlarged size of the university campuses in India, is now facing financial crisis which is increasing more as visible in most of the developing countries. University industry linkage may be an alternative to this crisis. Establishing an effective & successful collaboration between universities and industries in order to remain competitive and financially viable is an alternative. But this relation will sustain if appropriate steps will be taken by both sides (Universities & industries) to benefit mutual interests with objective to serve the society.

This paper makes an attempt to present the perception of higher education faculty members about the importance of University-Industry linkage and it is an effort to discuss the ways and means for making a strong university - industry linkage.

Keywords: university, industry

INTRODUCTION

It is proved well in developed countries that University-Industry Linkage is always beneficial from the point of view of both the sides Industry as well as academia. Universities want the industry linkages for impactful research also for extension of their studies and commercialization of their knowledgebase. Also industries, especially the financially compromised ones, look towards academia for solving their R&D problems to remain competitive, at the local and global level. Active engagement of industry people in academia along with exposure to students/research scholars to industrial environment through internships and trainings help in development of the skill-set as per latest needs.

In developed countries, the association has been operative and proved effective and viable for close to four decades. It is well recognized and an accepted view that higher education promotes socio-economic development by building human and technical capabilities of society. Technical changes and institutional changes are the most important components of development. Higher education is playing most important role in coping with these changes by helping to integrate advanced training and research with changing economic realities (Joshi & Ahir, 2007). The role played by universities in economic growth, through university–industry linkages, is occupying the minds of policymakers and academics without doubt. The prominent stakeholder that is industry, which has to become an integral part of the higher education, if objectives of economic competitiveness and qualitative higher education are to be, achieved (Joshi, 2007).

In this competitive era organizations or industry have come to recognize that innovation is a key ingredient for survival and to increase the profitability in a knowledge-based economy (Arntzen Bechina, 2007; Cumming, 1998). To cope with the economic challenges, successful organizations must have their focus on managing efficiently their corporate knowledge that is seen by many as a key source for competitive advantage and innovation (Laestadius, 2004; David and Johnson, 1997).

The other problem is that number of universities increasing and the number of students decreasing makes the education sector more and more challenging. In means, universities are still running with the costs with less income resulting in poor administration. Universities have to find new sources of income to improve and survive, and University-Industry Linkages may serve as a solution for universities to generate more earnings by capitalizing on their intellectual capabilities and in turn they can provide effective research based knowledge to the industry so that industries can cope up with challenges of business environment. Establishing an effective & successful collaboration between universities and industries in order to remain competitive and financially viable is an alternative. This paper makes an attempt to present the perception of higher education faculty

members about the importance of University-Industry linkage and it is an effort to discuss the ways and means for making a strong university - industry linkage.

LITERATURE REVIEW:

An important ingredient of a new knowledge management is the ability of industry to utilize externally generated knowledge such the one transferred from universities (Agrawal, 2001). In the USA some of the most prestigious universities (e.g, MIT) were established to support close research relationships between university and industry (U-I) (Matkin, 1990). The idea and concept associated with university-industry collaborations and associations is not new and it is mostly agreed that universities are an important source of new knowledge for industry (Agrawal, 2001).

To attain economic competitiveness, higher education must effectively play the lead role in educating our workforce. As it is well accepted that higher education has been direct and indirect factor for fostering continued investments in the development and acceptance as well as exploitation of new technologies that increases productivity growth, and ultimately, economic growth. But India's higher education faces many problems which range from the low rate of participation, financial crisis to low quality higher education. Here the role of the industry becomes imperative (Joshi, 2008; Tilak, 1996).

The partnership (U-I) has been considered as one of the main factors contributing to successful US innovation and growth in the past two decades (Hall, 2004). Many developed countries have been successful in collaboration between universities and industry. However, in most OECD countries, this tie up has intensified during last one decade or so. But most of the developing countries including India have realized the significance of this relationship at a very late stage (http://unesdoc.unesco.org/images/0012/001202/120290e.pdf). The collaboration between the university and industry can play a vital role as an important component for achieving the goals of knowledge economy. The university-industry cooperation has been stressed and envisaged by many scholars for building national competitiveness (Berman, 1990; Bartlett, 1988; Belanger, 1988; Chan, 1990; Barber, 1985; Chan, 1994; Wu, 1994).

For India it is the right time as new education policy is also taking the shape, to make its transition to the knowledge base economy—an economy that creates, disseminates, and uses knowledge to enhance the growth and development of country. To create the effective cadre of "knowledge workers," India need to develop a more effective and relevant educational system and re-design classroom teaching and learning objectives, starting from initial levels of education.

The professionals those are emerging from India's higher education system are mostly not find suitable for employment due to a gap between their knowledge and real practice. Many professionals are also leaving the country in search of better opportunities, which leads to brain drain. This situation alarms for an urgent effort to promote policy and institutional reforms in scientific and technical education for both public and private institutions to improve the quality and skills of India's current and future pool of technical manpower (Dahlman and Utz, 2005)

Knowledge resources are the key to success in modern days and knowledgeable & effective professionals to face these challenges is the need. It has been amply demonstrated that economies those are behind are having relatively low capacity use for the generation of relevant knowledge. Traditionally universities are regarded as temple of knowledge, where knowledge is generated either just for the sake getting or pursuit of knowledge without having any economic usefulness or for solving problems that would help in economic advancement.

The increasing role of knowledge in development suggests that universities and industry have to interact not only to create, but also to employ knowledge for development. While there are lot of evidences of interaction between universities and industry in developed and newly industrializing countries, developing countries are filled with universities that function, for the most of the part, independent of industry; and industry that University-industry cooperation, have been provided by Atlan (1990) and Peters and Fusfeld (1982). They are: (1) access to manpower, including well-trained graduates and knowledgeable faculty; (2) access to basic and applied research results (3) solutions to specific problems or mastery, not usually found in an the firms; (4) access to university facilities, not available in the companies(5) assistance in continuing education and training; (6) obtaining prestige or enhancing the company's image; and (7) being good local citizens or fostering good community relations.

The reason for universities to seek cooperation from industry is looking to be very simple. Peters and Fusfeld (1982) have identified several reasons for this interaction: (1) Industry provides a new source of money for university; (2) Industrial money involves less "red tape" than government money; (3) Industrially sponsored research provides student with exposure to real world research problems; (4) Industrially sponsored research provides university researchers a chance to work on an intellectually challenging research programs; (5) Some government funds are available for applied research, based upon a joint effort between university and industry.

As far as the types of university-industry interactions are concerned, there has not been a universally accepted classification but we can simply categorize university-industry interactions into (1) general support; (2) contract

research; (3) research centers and institutes; (4) research consortia; (5) industrial associate/affiliate programs; (6) new business incubators and research parks (http://www.oecd.org/dataoecd/9/23/2754521.pdf).
The present paper tries to identify the areas and types of industrial support for higher education, and explores the ways and means for enhancing the university industry linkage as per the viewpoint of faculty members. To deal comprehensively with the issues related to university industry linkage, information was gathered through the interviews of 100 faculty members of different universities as it is very much essential to establish these collaborations in such a way that it must satisfy the requirements of both sides in which faculty members engaged in higher education is an important stakeholder.

Nature and Benefits of University-Industry Linkage:
Recent Working Group Report on 'Enabling and Enhancing University and Industry Linkages' submitted to UGC is firmly advocating that University-Industry linkage is the need and it must be implemented effectively. **"**Universities and Higher Educational Institutes are crucibles of new knowledge. They work at the cutting edge of science and develop human resource at higher levels with required skills. Industry in turn uses these resources – knowledge-base and trained manpower – to translate the new knowledge into useful and patentable applications as well as technologies to enhance their competitiveness, besides creating jobs. Such close linkages are mutually beneficial in a variety of ways." (Working Group Report, UGC 2019)
If we identify the various advantages of University-Industry Linkages than some of these can be summarized these as follows:

- Collaborative research with industry support with the help of students and faculty members
- Latest equipments can be organised with support of Government and industry funding
- Improved training and employment opportunity for students
- Impactful hub of innovation that supports creativity, and entrepreneurship in the campus can be established
- Supplement incomes to the teachers and staff
- Students and staff to get opportunities to become familiar with industrial environment and state-of- art
- Opportunity to attract funds for teaching and research which in turn may give more financial autonomy to universities
- Industry gets benefit of research oriented manpower for their research
- Knowledge creation as per the need of industry etc

Faculty Perception:
About 100 faculty members of various Universities comprising of various disciplines were asked through the interview to give their views about the benefits of university-industry collaboration. Almost 85 percent of the faculty respondents agreed that industry can play a significant role for the development of any higher education institution. in addressing the financial crisis. But some of the faculty members were having the opinion that it creates the ego problem between academia and industry as industries always try to dictate terms and conditions of the tie-ups and it was indicated as a major reason for failure of this relationship and as a result the benefits to university were always much less and non effective. It is also viewed that it is very essential to collaborate because the it can provide a financial boost to the higher education organization which is a big problem of higher education institutions these days. Some of the findings for effective linkages came from faculty members and they have suggested :

- Mobility of Faculty members from University to Industry and vice versa must be encouraged
- Industry-relevant courses in the academic curriculum can be incorporated & Professionals from Industries may be invited for giving suggestions in designing the curriculum
- Regular meets of Industry and academia
- Integrating industrial training / internships to the students to provide an exposure to the corporate world
- Entrepreneurial skill oriented activities in the universities must be organised by creating of Incubation Centres, Technology Parks etc
- Scholarships/fellowships at the universities to undertake industry specific research problems / trouble shooting may be given by industry also university should encourage faculty members and students to undertake these activities.
- IPR Policies should be made.
- Industries should permit university faculty members to be the part of Boards of companies
- Exclusive Cell in Campus for University-Industry Linkage

It can be said that most of the faculty members stated the benefits of university industry linkage which were identified in the study are following the findings of Blackman and Segal (1993) which shows the undernoted benefits:

- These linkages provide opportunity to attract additional funds for teaching and research, with increased. financial autonomy of higher education institutions

- Collaborative & co-operative research with enterprises and government support
- acquisition of up-to-date equipment;
- More Chances for faculty and students to become familiar to Industry & technological advancements
- opportunity to identify and recruit talent
- Improved interaction of higher education departments with industry
- More and effective training and employment prospects for students
- Increment in income from consulting, to improve salaries
- Enhancement of the higher education institutions image as a contributor to the economy.
- Access to new ideas and knowledge of breakthroughs

Notes on Suggestions:

It is evident that increasing financial crisis and quality concerns in higher education has been a major reason for creating collaboration with industry. Also decreasing students as well as poor demand from industry is also a cause of worry. The working group of UGC has also suggest lot of measures to be taken and it viewed that the university industry linkage works on bilateral gains and it has been recognized well by the respondents.

- Universities / higher education institution should go for identification of the areas where they can conduct fruitful university-industry collaboration.
- Effective consultancy must be encouraged in University with proper incentives.
- Designing the university programmes and syllabus in such a way which suits industry requirements
- Universities should design effective policies for motivating through high incentives and these must be different incentives as per different situations and requirements.
- Mobility of faculty members and industry experts should be increased to get reciprocal knowledge
- Universities may interact with industry yo identify their needs time to time and should try to incorporate these needs in their syllabus
- While going for combined research it is important to finalize the ownership and exploitation rights for any intellectual property (IP) that may be generated for it model contracts have to design.
- Separate Industry-University linkage Cell should be established to facilitate the same.
- Government should encourage both the stakeholders through effective policy, which may include tax concessions for industries taking consultancy or collaboration with the university or higher education institutions.

CONCLUSION:

India is a country having more than one thousand universities and still it has not fully realized the complete potential of University-Industry collaborations, except some of the associations. University-Industry associations are recognized as the key element and such collaborations will affect far reaching socio-economic impact which can only be achieved through Academia-Industry Linkages.

In most of the universities the problem has already arises the area of finance, efficiency and quality, but no precise pr specific steps are taken by the organizations to solve the problem. It is the right time in the wake of New Education Policy for the universities to think over it and they must design their offerings or services as per the market needs and should try to market their knowledge base to become financially sound and must work for improvement of quality in academics. University- Industry linkage on a larger scale may generate resources for the higher education along with the production of true human capital and quality education & certainly these measures will have a far-reaching affect in the years to come for higher education system.

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