Quality Assessment of Academic Initiatives for Higher Education Research in Pakistan

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1. Abstract

Higher education sector is facilitating higher learning institutions for the socio-economic development in country. Number of program and initiatives has been taken for improvement of higher learning viz. strengthen IT infrastructure, faculty development, improving access and leaning, excellence in research, good governance & management, quality assurance in standards, assessment & accreditation etc.
The university-industry interaction provides quality enhancement to two entities. higher education sector, in which research through practical approaches is being groomed and Industries in which quality dimension is in existence will likely to result its end products to compete in era of globalization.
The overall study will focus to define and assess the quality dimensions with various policies being practiced at higher education sector for overall quality of research at higher educational level with a view to fill the gap between industry and academia.
Purpose - The purpose of the study is to assess the integration of existing research being undertaken at Pakistan for socio-economic growth of country. In the context the study intends to identify and suggest various policies, procedure and some sort of standards to work as bridge element between academia and industries. The study will also explore how HEC can provide facilities to universities to fulfill initial requirement of industrial sector and at the same time monitor the facilities using some effective mechanism.
Methodology - The paper will analyses the current initiatives of higher education sector related to industry academia relation and propose the selected quality indicators for use in management audit of respective programs.
Findings -The study will assess how higher education sector intervening help to improve quality of Education in Pakistan. It will also review its role to strengthen industry academia relation by playing the key role in the economic development of Pakistan
Value of Paper - Publications of this paper will help policy maker/higher education sector to design/upgrade/modify the existing initiatives being undertaken in developing nations.
Keywords - research & development, carrier appraisal, collaboration, assessment & evaluation, scientific solution, area of study.
Paper Type – case study

2. Background

Quality in education, training and lifelong learning is required to compete globally. Steps in Pakistan for promotion of quality education and initiatives are being taken right away. These initiatives have certainly starts focusing all aspects of quality enhancement in education, learning and training. Through technological development and infrastructure quality objectives are easy to achieve. Moreover quality assurance and enhancement are essential components (Brookes and Downie, 2002) of quality which also helps organizations to achieve effective quality goals. For planning, quality objectives are necessary to be established which may develop new process, standards and procedures within organizations and academia.

It is important to discuss what resources are required for enhancing quality of research in our academia. Quality in education comes together with performance of teaching, learning, academic programs, research facilities, staff, students, infrastructure etc. In addition students getting admission in Master, Mphill and PhD programs are the outcome of academia through which they compete at national & international forums and provide possible solutions to industry, SME(s), agriculture, livestock etc. Though it is much debatable that how and at what level research produces in our country can fulfill national requirement for socio-economic development.

Quality in knowledge based economy boosts industry performance, as the quality of research in our academia can be utilized to improve quality in productions/outcomes of our industries as well as services sector. In the recent past, initiatives for the improvement of quality in research has been taken by the higher education sector for promoting research & development (R&D) culture within academia, however more initiatives are to be taken for quality assurance by defining assessment & evaluation criteria for educational programs so that better outcome of research could be achieved and same research may be utilized in industries and SME(s).

Despite the abundance of research, there is no universal consensus on how best to measure quality in higher education (Becket and Brookes, 2005). Even in our country quality assessment in higher education sector may vary across different areas. So for the quality assurance, initially suitable policies are needed to be set out for easy access of higher education and collaboration with private/ commercial entities.

It is also considered that assessment or evaluation in higher education sector provide the better outcome of quality. This assessment and evaluation may fulfill this gap but without the vision, goals, good governance, technology infrastructure, research & development facilities etc. quality parameters even does not exits. No doubt the assessment and evaluation for quality in education is vital which is based on development and interaction of all entities in academia.

The authors has assessed important initiatives have taken by higher education sector for improvement of quality in education. Also focus quality dimensions being practiced at national & international levels and requirement of overall quality of research at higher education within country with a view to fill the gap between industry and academia.

3. Introduction

Higher education sector has taken initiatives for improvement of quality in higher education in the Pakistan. Though to create the environment of research within the campuses there are requirements for improvement of facilities to researchers, faculty members and students. Also internal academic assessment and carrier appraisal system are essential to encourage researchers to keep the pace for developing latest research ideas.

Overall strategic initiatives for increasing the numbers in business and industries are taken within country. In addition the involvement of academia for entail research and scientific solution may certainly put innovations in the industry, SME(s), agriculture, livestock etc sector.

In Europe (European Commission, 2006) working groups are dedicated for joint research programs between academia and industries. These groups have put coherent and powerful set of recommendations.

In our country there is currently required to turn research outcome into globally competitive era. To achieve this, programs like long term relationships, strengthen cooperation, research management support are essential to introduce. Partnerships between university industries are to be established locally and internationally for jointly research support.

4. Challenges

Recently some of challenges ahead on our country economics, this required high level strategy with set of policies and procedures to strengthen overall economic condition of country. These challenges are also effecting to define role of nation globally.

4.1 Competition

Increasing global competition has already starts new innovations in quality around the world. Having the huge competitors available from neighbor countries particularly China, India, etc. Pakistan will have to recognize its own social identity. Further there is need to address issues in the light of new environment of globalization, technological change and aging population.

4.2 Knowledge Based Economy

Driven from knowledge based economy to knowledge based society has social, economic, political and technological dimensioned which are required to be focused.

4.3 Governance Model

Role of leadership is out of sight and empowering the organizations is lacking behind. Due to this reason many opportunities are missed and could not be fruitful. In the developed nations organization are empowered with set rules and decision which are implemented and regular improved in the favor of increasing quality.

4.4 International Interference

International interference effects implementing policies, wherever modify policies are implemented without ground realities which effect overall economy of country.

5. Gap Analysis

Policies are required for easy access and participation to education and research. This includes learning objectives, teaching practices, distance learning programs etc. The role model within academia for better decision making may develop possible access of education and research. These role models also utilize for awareness so that enrollment in higher education sector could be increased. As per the statistics (World Bank, 2006) only one-fifth of students could enroll in the universities of Pakistan (statistics of year 2004), who passed

the intermediate (HSc) exams. Where as remaining enrolled in professional affiliated colleges or enter into labor market. The awareness and easy set of policies e.g. distance learning, low fees, stipends, scholarships funds in education may increase overall enrollment.

Secondly in the enrollment of students for higher education there is larger gap available in enrollment between general and engineering, agriculture & medical field of studies. This unappealing situation may be due to very small number of seats available and secondly awareness, motivation and career guidelines. As per available information of 2005 in Pakistan, only 5.2% students in agriculture, 13.2% students in engineering and 2.7% students in medical enrolled, where as 47.3% enrollment in general area of studies.

This large gap is need to be reduced on priority as the globalization is going very speedy adopting computing and technology solutions for education, industry, agriculture, medical, livestock, constructions, communication etc.

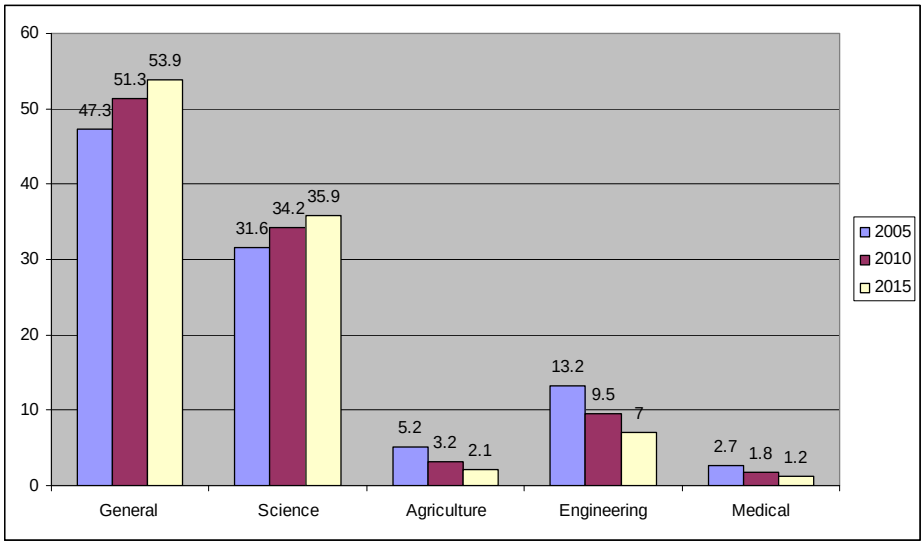

Figure 1: Projected Distribution of University Enrollments by Discipline

As per the statistics available (Pakistan Research Repository) more than 3000 of PhD(s) have been produced within the universities of Pakistan. In the figure 2 the gap between numbers of research produced discipline wise in the universities of Pakistan again visible. Ph.D(s) produced in engineering technology, medical sciences, agriculture is even not equal to the number of social science.

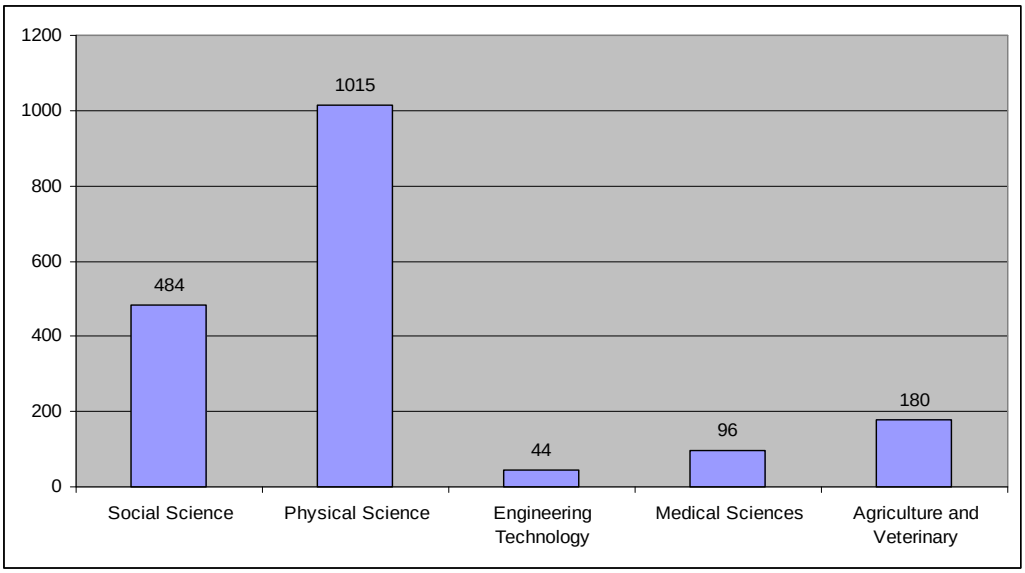

Figure 2: Discipline wise Ph.D(s) produced in the universities of Pakistan
Sources: Pakistan Research Repository 28th May 2008

In the case to set the strategic goals and to achieve knowledge based economy, modern engineering tools and effective agriculture procedures are required. For the support of Industry, SME(s) and agriculture sector currently these disciplines required highly consideration. Not only the numbers of seats are required to be increased for these field of studies but the over all quality improvement of education through technological infrastructure, equipment etc. is to be upgraded/modified. Furthermore easy procedures and methods of study with better research facilities may also increase the participation.

6. Driven to knowledge based economy to knowledge based society

The transition carries many dimensions and process where quality of education and training, latest technologies and trends, competencies and skills, quality consciousness, digital knowledge, awareness etc are major indicators to be focused.

As per the composite indicators for knowledge based economy (European Commission, 2003) percentage of investment in higher education sector is measured which based for total input of quality enhancement. As per details available estimated Rs. 390 Billion will be used for quality enhancement in higher education sector. The 25% of amount will be utilize for research & development activities, 35% equipment and infrastructure as fixed capita for providing quality of research, 26% will be utilized for faculty development and higher research funding. As research support program are also important so 5% of funds are allocated for it. Trainings for academia and its employees (capacity building) are given the edge of 9% allocation. E-Governement is also given less then 1% of allocation.

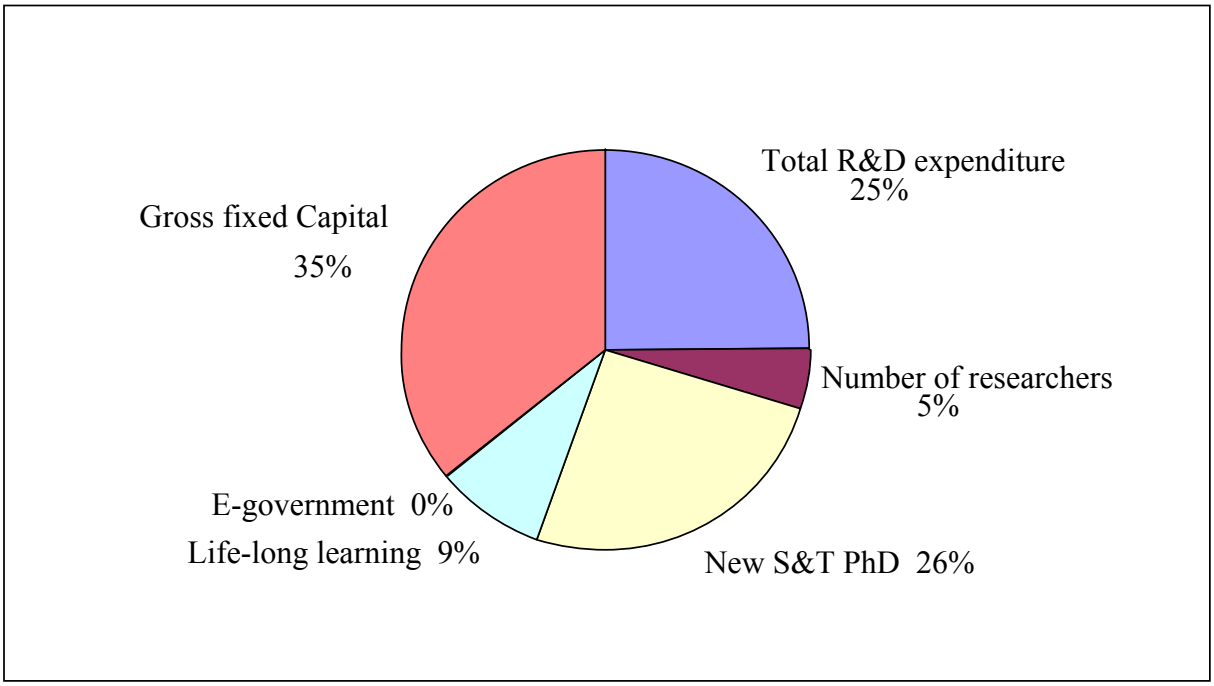

Figure 3: Total Input for knowledge-based economy in Higher Education Sector (2005-2015)

7. International Trends and Initiatives

Diversify the funding resources is one the major initiative. This is previously observed that changing of political order in our country raise new priorities which sometime effect the progress of previously initiatives. In the USA, system is highly decentralized and even public sector universities diverse funding resources including funds from state and national government, foundations, corporations support tuitions fees, alumni gifts etc. where as private universities gets endowment funds.

Internationally academia seeking diversity for funds raising despite relay on pure government resources. Strategic initiatives are developed in our academia for maintaining the quality of education through many resources other then government funds. As targeted goals are difficult to meet once the political government priority or initiatives are changed. So resource generation from other places may help academia for continue initiatives.

One of the important resource generation idea through academia-industry strategic partnerships in which academia may generate some resources providing human development training or vice versa and similar providing industries possible scientific solutions. Similar in agriculture and livestock number of procedure and methods are required where the consultancy is helpful for farmers.

8. Quality Indicators

Authors have reviewed and prepare quality indicators (European Commission, 2002 and Sajid, 2003) with recommendations based on increasing overall quality of research in academia as well as helpful for establishing partnerships with industries. National and international interests and trends are also reviewed which are essential to increase the quality of overall research in academia focusing the same research could be utilized for socio-economic growth of country.

8.1 Latest Curriculum

One of the major initiatives required to be taken for introducing latest curriculum in academia. This would only be possible if international syllabus, geographical position, priorities etc also made in agenda during the curriculum development. Latest curriculum can bring awareness over latest technologies and tools in our academia.

8.2 Research Tools

It is observed that due shortage of research tools and material, the research produced in our country based on only theoretical concepts. Due to this factor research conducted locally difficult to compete in international era. The policy makers of higher education sector should allocate adequate budget for researchers so that testbeds or computing simulations be developed within in academia.

8.3 IT Infrastructure

Information Technology is one of the most transformative in emergence of new learning objectives. It has certainly changed the ways of access and learning. IT infrastructure is currently the need of any organization for running its internal and external business processes. As the major business process are being taken care under information technology tools and computing software. Academia is required to be equipped with latest IT equipment so that effective communications between universities could be possible. As well as software based methodologies and simulations could be develop, test and run on such machines.

8.4 E-Learning

Currently IT facilities can play the role in success of any organization which provides ease of management and learning methods. It is now very important to train the employees and academia for IT facilities. E-learning is also use for capacity development of academia. This is much needed as many of research materials and e-libraries are now available through internet and digital format.

8.5 Technology Awareness

It is one of disadvantage that research produced in our academia could not recognize or compete internationally by not adopting latest technology and trends, which is probably lack of technology awareness. In this regard academia should arrange the seminars and workshops of technology awareness with collaboration of international academia & industry for not only faculty members & researchers but also for students.

8.6 Faculty Development

Quality of teaching is linked with effective & efficient teaching practices and knowledge. Programs are essential to allocate fund for faculty development. Currently higher education sector in Pakistan has taken initiatives for providing foreign and local PhD scholarships. In addition these programs and academia also needs quality enhancement and assessment so that students enrolled in local universities produce authenticated and quality of research.

8.7 Innovations towards Industry requirement

This has been an issue that a very small quantity of research projects developed in academia are being used in industry of SME(s) in our country. The researcher are required to follow the latest trends as well the requirement of industry so that research produced in our academia could be utilized in better industry productions and also to compete in international markets.

8.8 Trainings

In context of IT trainings, skillful capacity development is also necessary in academia. Enhancing researcher's technical, communication, presentation, scientific etc. skills will helpful to broad vision. Entrepreneurship trainings are also helpful to researchers to exploit their knowledge and develop potential commercial linkages.

8.9 Relationship with industry

Currently there is need to built the relationship of academia and industry. Higher educations sector should allocate the funds for seminars and workshops of university academia interaction so that relationship could be develop and requirement could be visualized. Moreover new such programs are also required to be launch to closer the gap between academia and industry.

8.10 Partnerships with related Societies

Universities in Europe have developed their partnerships with industries and similar association within the Europe and all over the world. In our country there is requirement to develop relationship with such associations so that it may be examined that how business community and academia could work in partnerships to meet research and development (R&D) needs.

8.11 Industry based Seminars

This is also important that industry based seminars be arranged for awareness. In our country academia must be aware that what are the industry requirements and how these be met with through available resources.

8.12 Areas of Interest

It important to know the factors and problems required to meet market needs. This is based on the relationship to be developed between industry and academia to generate the requirement with possible scientific solution. This would effect on overall quality of education and industry productions.

8.13 Exchange of Information from neighboring countries

Exchange of information from neighboring countries will benefits researchers to resolve the industry related issues with technology solution. Particularly our neighboring countries like Chain and India have already initiated their programs of collaborations with related societies and academia industry interaction programs.

It would also attract if the programs like staff exchanges or positions in industry of researchers with financial incentives are created locally as well as with our neighboring countries.

8.14 Paid Internships of Student to Industries

Education sector is required to finance the students and researchers for paid internships/stipends at industry and SME(s). The requirement of internships should be communicated to academia so that related placement is made. Secondly this would certainly generate the actual requirement of industry for their possible solution.

8.15 SME(s) Support

Higher education sector can provide guidelines to SME(s) for scientific possible solution. The regional offices can promote collaborations between SME(s) and higher education institutions & research centers to develop professional networks. This would certainly help to indentify the basic needs and technical requirement required to SME(s) established all over the country.

8.16 Good Governance

For any success of organizations good governance plays a vital role. Authorities are responsible for making the procedures inline with the requirement of employees. In our educational institutions authorities are required to be provided administrative autonomy to manage inter academic issues with defined and agreed set of policies.

8.17 Administrative Autonomy

Autonomy will be required at institutions level like recruitment of staff, financing, etc. Moreover national legislation should allow researchers of academia to work part time and consulting vice versa in research related projects.

8.18 Research Management Programs

Research Management support programs are required to initiate and manage. These programs must focusing not only industry academia but also overall research of academia abreast with latest technological trends and requirement. These programs must be assessed with appropriate set of rules for quality enhancement.

8.19 Working Groups

Taskforces are required to be constituted in the form of working groups. These groups should look forward not only for managing the academia industry awareness but also responsible for quality of life long learning , carrier appraisals, administrative barriers, structure initiatives, knowledge & skills etc. and particular the research of academia to use as socio-economic development of country. Further working groups also identify the requirement of industries, SME(s).

8.20 Access and Participation

Free or easy access to resources eventually increases the participants of researchers. The academia in our country required to define easy access policies to utilize resources available. In this case partnerships are also required to develop conducting instrumental or other skill development related trainings for research at national and international levels.

9. Conclusion with recommendations

Quality assurance and enhancement in education can raise quality in research, learning, teaching, analysis, procedures, mechanisms and system. This also guarantees the improvement of overall standards and quality in higher education. The study guides how quality enhancement can be achieved through the interaction and collaboration of two entities i.e. academia & industry. The recommendations are certainly helpful for higher education sector to enhance students and researchers learning activities by incorporating latest technology tools and trends particularly those programs which are not yet initiated. Highly considerations of policy maker of higher education sector are required to gear up awareness over areas of study e.g. medical, engineering & technology, agriculture etc. Potential research of these areas can enhance and improve the quality and the outcome in the shape of strengthens economy. The focus on area of studies can certainly help policy maker of higher education sector to meet the challenges ahead on the economy of Pakistan. The assessment and evaluation criteria of higher education sector are much required to be revised. Further the idea of learning and teaching as research should involve deliberate and systematic methods which may be utilize to develop and implement teaching practices with advance learning experiences.

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