Amity Business Journal
2015, Vol. 4, No. 1

Copyright 2015 by ABS,
Amity University Uttar Pradesh, Lucknow Campus (ISSN 2278-0904)

Role of Universities in Entrepreneurship Development in Sindh: An Exploratory Survey

Erum Zaidi* **Mustaghis-ur-Rehman****

This research explores the level of existence of entrepreneurship development and the role of Universities in the Province of Sindh, which has the distinction of having the largest number of Universities in Pakistan. Universities of Sindh are supposed to play an imperative role towardsthe development of entrepreneurship. Findings of this research reflect that entrepreneurship development in the Universities of Sindh is still at the infancy stage. However, majority of the Universities, public and private, do acknowledge the importance of entrepreneurship development.

This study is exploratory and of cross sectional in nature. It has been carried out to uncover the detailed information for understanding the prevalence level of entrepreneurship development in the Universities of Sindh. The data has been collected through in-depth personal interviews and telephonic interviews(remote areas) of responsible persons of the respective universities and through website surveys.

Keywords: Enterprise Development, Education, Universities, Knowledge Economy

Introduction

The industrial growth, world over, is primarily due to the pivotal role that universities are playing in generating new insights through research and transferring it to the emerging individuals/ researchers and apprehensive organizations and researchers. By developing entrepreneurs universities are not only making these individuals self-reliant but also making them a source of employment for others, who are unemployed/ underemployed. Examples such as Silicon Valley by Stanford and the Massachusetts Institute of Technology that initiated Route 128, confirms the research by Miner et al (2001) that university is a source of economic development. The success stories indicate that a university can originate an economic development program in its territorial region by providing skills development program and also by setting up incubations, and entrepreneurs' development centers (Gnyawali and Fogel 1994).

Unfortunately unemployment rate in Pakistan has increased year on year for the last three years. It has gone up from 6% in 2009 to 8% in 2012. Full time employment in formal sectors of Pakistan implies, at least eight hours of work. Partial employment in the non-formal sector is also counted as employed. Therefore, the role of universities is important in producing job creation instead of increasing job seekers. However, in Pakistan, particularly in Sindh Province, the role of universities entrepreneurship development is less common. Nevertheless, Sindh is a hub of commercial activity, hence Karachi is said to be New York of Pakistan. Hence, it is important to decipher the role of Universities in entrepreneurship development in Sindh.

The major objective of this research is to explore the role of universities in the entrepreneurship development and their contributions in the creation of jobs in Sindh. The specific objectives of this research are:

- To find out entrepreneurship development centers within the universities/DAIs(Degree Awarding Institutes)
- To ascertain the skill development centers established by the universities/DAIs
- To collect information about the incubation centers set up by the universities/DAIs
- To find if there are any activities or support programs regarding the entrepreneurship development process.

* *Faculty at the College of Business Management (CBM) Karachi. Email:erum.zaidi@iobm.edu.pk*

** *Mustaghis-ur-Rehman, Professor at Indus University. Email: mustaghis@indus.edu.pk*

Research Methodology

This is based upon a cross- sectional exploratory survey of the Universities in Sindh province. The data has been collected through in-depth personal interviews and telephonic interviews of responsible persons of selected universities and websites, descriptive statistics have been used to quantify the results.

According to the statistics available on the website of the Higher Education Commission about recognized universities in Sindh (HEC2010) there are total 39 universities in Sindh, out of which 14 universities are in public sector and 25 in private sector. HEC has prohibited two universities to stop their operations as they were not established in compliance with the HEC policy. The total number of universities in operations is 37, which is the population of this research. Only chartered universities or DAIs (Degree Awarding Institute) have been selected for this research.

The sampling methodology is non-probability, and convenience sampling has been adopted for the research. Since target was already small, therefore, all universities were surveyed that are noteworthy for the entrepreneurship development. Medical universities were excluded, after verifying from their academics offices regarding their policies on entrepreneurship development. Therefore, the sample size is 31.Sampling criteria chosen for this research are:

a. Universities recognized by Higher education commission (HEC),

b. Multi-disciplinary (Business, Art, Architecture, Textile, Science &Technology and Education)

c. 10 years of operating period.

The data has been collected from the programs offered by the universities, as available on their websites, which include courses and activities related to entrepreneurship development, presence of incubation centers, skills development center, and research based initiation of projects. Collected data was further verified by the responsible persons of selected universities. The curriculum developed for entrepreneurial development courses were also investigated. The selected 31 universities were contacted through their published online telephone numbers, and posted by the HEC's statistical Information Unit. The interviews were scheduled on the convenience of the respondents (who were the representatives of the respective departments of the universities) time and place were set accordingly. Due to law and order situation of Karachi, majority of universities opted to give interviews on the telephone and they were requested to fill in the question nairesand return them via email. The universities, out of Karachi Metropolitan, were also contacted via telephone and questionnaires were emailed or dispatched through courier service. Seven of them replied promptly, and the rest, responded through telephones, after repeated telephone calls and emails.

Best Practices of an Entrepreneurial University

The 14 ingredients of the best practices of an Entrepreneurial University have been identified by Tornatzky et al (2002), Corona, Doutriaux and Mian (2006) cited in Mian (2006) as follows:

(1) Statement of purpose: vision, mission, goals/objectives (2) Industry research partnerships, (3)Industry education and training partnerships (4)Student internships and job placement, (5) Technology transfer programs, (6) Industry problems solving and assistance, (7) Enterprise development support, (8)Formal partnerships with economic development organizations, (9) Industry/university advisory board and councils, (10) Faculty culture and rewards for outreach, (11) Restructuring of Curriculum, (12) Campus less emphasis, (13) Quality, customer service, globalization, and profit emphasis, (14) Networked and responsive system.

The above items have been taken as bench marks for identifying the entrepreneurial universities in Sindh.

Literature Underpinning

The importance of entrepreneurship and enterprise development has been highlighted with proven examples of many developed and developing economies (Thurick 1994 and Reynold et al 2001).This subject is not based on theoretical assumptions but has the positive implications on masses; economically as well as with social strengthening of the nations.

Role of Universities and Criticism

As (Feller, 1990) conceived that the universities have played a vital role in the growth of innovation system, but now the role has been shifted to

economic development by providing relevant education in entrepreneurial development. Liyan (2005) stated that many world renowned universities e.g. European Universities (Nurmi and Paasio, 2007) had reorganized the research process, by setting up specialized units, according to the local market demands. To this date, many universities and professors are skeptical in the involvement of universities in entrepreneurship and jobs creation. An ophthalmology professor of John Hopkins, Robert Massof, has commented this new role of research universities as prostitution (Slaughter 2001and Nelson 2001). Masoof has expressed his concern that universities are being asked to deviate from an historical role in the US system of innovation and commercialism, and it can destroy the culture of science and research.

A more recent concern is whether universities are becoming too much like industry (Bercovitz and Feldman 2006). The most important factor, which is required to be focused on by the academic and market leaders, is to identify the equilibrium between the open knowledge propagation and the university entrepreneurial development functions. This reflects that in the present world, where in globalization and technology is ruling the world, the only way to grow economically, is be proactive and change the role of universities. They should become nurseries for nurturing and growing new strong seedlings of enterprises, which can grow muscularly in to profitable plants. A well stated example is of Chinese government, which substituted the low wage businesses to high tech ones as that government hadrealized that high tech products had more markets and highly skilled people(Schramm,2004)

Examples Across the Globe

According to (Katz, 2003) cited in (Khan, 2008), entrepreneurship education has been accepted by many universities of the world. For example, in the USA, entrepreneurship education has been taught in more than 1,600 schools. In China, Liyan (2005) many universities have their own incubator for the students' start-ups. In India,more than 100 different departments of universities offer courses in entrepreneurship. Raghavan Center for Entrepreneurial Learning in Bangalore and Calcutta (NSRCELIIMB) carrying out international collaboration projects. The Global Entrepreneurship Monitor (GEM) Project is being worked on jointly by the London Business School, the Ewing Marion Kaufmann Foundation, and Babson College for the last couple of years.In 1990s, Taiwan moved towards building its innovative capacity, and has set up incubators in three universities; National Chiao Tung University (NCTU), National TsingHua University (NTHU)both located in the Hsinchu high-tech belt, National Taiwan University (NTU) which located in the Taipei Metropolitan area, as well as in the Industrial Technology Research Institute (ITRI).In case of UK, the universities are making UK entrepreneurial societies. The Bank of England has funded to open programs in Leeds Metropolitan University and West Yorkshire universities modules for entrepreneurial along with the incubator centers (David,2003).

Israel, which is a very small country yet it has the locations of high concentration industry in four of the regions. The Weizmann Institute Rehovot region in Weizmann Institute, Faculty of Agriculture in the Jerusalem region, the Hebrew University in Tel Aviv region, Tel Aviv University and university-operated (Technion) incubators at its center. There are 24 technological incubators and 208 incubator projects which reflect the efforts of this tiny state for the entrepreneurship development (Kaufman et al, 2003). Malaysia has shown a tremendous response to the need of knowledge economy in Multimedia University (MMU). A program in Bachelor of Multimedia (Media Innovation & Entrepreneurship) has been introduced and entrepreneurship is a core course for the program in all the universities of Malaysia. At the MBA level, entrepreneurship is the core subject in most of the higher educational institutions in Malaysia (Ming Yu and Chan 2004).

Nuurmi and Paasio (2007) talks about the case of Finland universities, they are associated with particular field and are promoting the same industry. For example, Lappeenranta University of Technology supports science and technology industry. Chakrabarti and Rice (2003) stated that Helsinki University of Technology became a major center for growth in wireless communication and information technology in the island. The incubators or enterprise development centers not only houses the entrepreneurial firms, but also provides the opportunity to network with the technical university personnel. In this way they have overcome the unemployment problem after the Second World War (Chakarbarti and Rice 2003).

Entrepreneurship Development in Pakistan

Entrepreneurship development in Pakistan through universities is relatively a new concept. The culture of owning your own business is primarily dependent on the family background, the individual belongs to, and the area from which an individual inhabits. Laghari (2010) talked about knowledge economy, which is a crucial need of Pakistan today. The development of knowledge will not be possible if there is no well-trained faculty available to build the capacity of the students via university(Khan, 2008).

At the time of independence, Pakistan inherited only one public university, the University of Punjab (Lahore) and two engineering colleges. By the1980's there were about 20 public universities established in different parts of the country. In the same era the country witnessed the rise of private universities and Institutes of Higher Education. The first private University, the Aga Khan University, was founded in 1983, in Karachi, and in 1985 Lahore University of Management Sciences (LUMS) was set up as a private business school. Today the universities have grown not only in numbers but also in terms of quality, which are enabling the two universities of Pakistan to be ranked among the world's 500 best universities namely National University of Science and Technology (NUST) Islamabad and University of Engineering and Technology (UET) Lahore (Laghari, 2010). Bahauddin Zakariya University and LUMS have initiated the enterprise development program (Akhtar, etal, 2010) but other universities have not contributed significantly, however, an entrepreneurship course in business degree programs is being taught there (Khan, 2008). University of Agriculture of Faisalabad, in collaboration with The Competitiveness Support Fund(CSF), has also started the entrepreneurship projects. IBA-Karachi has also been funded by CSF in setting up of entrepreneurship department (CSF, 2009).

A recent development in this regard is that CSF will jointly invest with the HEC in setting up of business incubators at leading universities (CSF, 2009). Each incubator will host 5-8 emerging entrepreneurs. This will provide assistance in training and management of information, business planning, physical infrastructure and pre incubation.

Profile of the Universities in Sindh

Sindh has 14 public universities; out of which 8 are in interior Sindh, and 6 are in Karachi. Sindh has the edge over other provinces in Pakistan for hosting the largest number of private universities i.e. 25 universities, out of which 23 are in Karachi, and two in Hyderabad (HEC, 2010).

Location of Universities

Sindh has shown a mushroom growth of universities in the private sector; ironically, it is only confined to Karachi city(both public and private)and 10 are in other small cities of Sindh, which includes Hyderabad, Tando Jam, Sukkur, Nawabshah, Khairpur, Larkana and Jamshoro.

Disciplines of Universities

In Sindh, there are seven Medical Universities, out of which one is Herbal Medicine University and other nineare multi-discipline universities. There are seven engineering and technology universities. Interestingly there are 13 business schools, which also teach computer studies. In the textile sector there are specialized universities one each for agriculture, art and architecture subject, though these disciplines are taught in multi disciplines universities as well.

Results and Findings

Three universities of Karachi namely; Institute of Business Administration (IBA), Pakistan Air Force Karachi Institute of Economics and Technology (PAF-KIET) and IQRA University, expressed the importance of entrepreneurship in their Vision and Mission statements. FAST-National University (FAST-NU) talked about the progression of knowledge economy development 90% of the universities have well written vision, mission statements according to the requirements of academia but not specific to entrepreneurship 84% of the university do not have a Center of Entrepreneurial Development (CED), 3% have a CED 9.6% are in process of setting up the center. Newports Institute of Communications & Economics (NICE) has initiated the program but the formal launching of the center has been postponed, for the time being, due to lack of space in the current premises. IBA Karachi has signed MoU (Memorandum of Understanding) with the Babson College of entrepreneurship for 10years. IBA Sukkur is also signing MoU with Shell Taameer and it is in process of setting up of CED. University of Sindh during the telephonic interview has claimed

that they are also starting the CED. Interestingly, few universities' concerned personnel were not aware of the term and said they have heard it for the first time.

100% of the respondents endorsed the importance of Entrepreneurship Development Center (EDC) and relevant training. 60% respondents rate the importance between 8-9 points out of 10. At the same time 40% of the respondents expressed their reservations, which were mainly based on four reasons; firstly "industry does not collaborate with the university in any form". "There is a lot of verbal expression but they are not present in practical scenario". "Industry does not share their expertise or problems with the academics". Secondly due to socio-economic conditions or family background, our culture is of risks averse. For instance a banker's son would end up working in a bank or at a Multinational Corporation. Student coming from entrepreneur background have more chances to end up either continuing the family business or setting up their own business. Thirdly, due to non-availability of the funds, as respondents stated that even if the student arranges the seed money, they would not get support from the government or any assistance from financial institutions to run the show. Another respondent highlighted that students in local universities are mostly from middle class families, who are not inclined to do business rather they opt for jobs. Fourthly, one window operation does not exist, and starting business means running from pole to post for a simple permission. The authority personnel make doing business an ordeal for the new entrant. Therefore, the mentioned factors don't create demand for entrepreneurship development. Hence, the private universities (are profit oriented) opt for those disciplines wherein students demands are high i.e. job ensuring subjects, which facilitates them to attain a better job in the market. Public universities follow the directions of Government and their inclination towards the university driven entrepreneurial activities is stillat an infancy stage.

61% of respondents informed that one compulsory course of entrepreneurship is being taught in BBA or MBA level. Engineering and technical universities do not offer the entrepreneurship courses but do teach project management, HR management courses 11% stated that curriculum is being developed and 28% expressed that there is no curriculum designed for this purpose.

Figure 1: Universities in Sindh

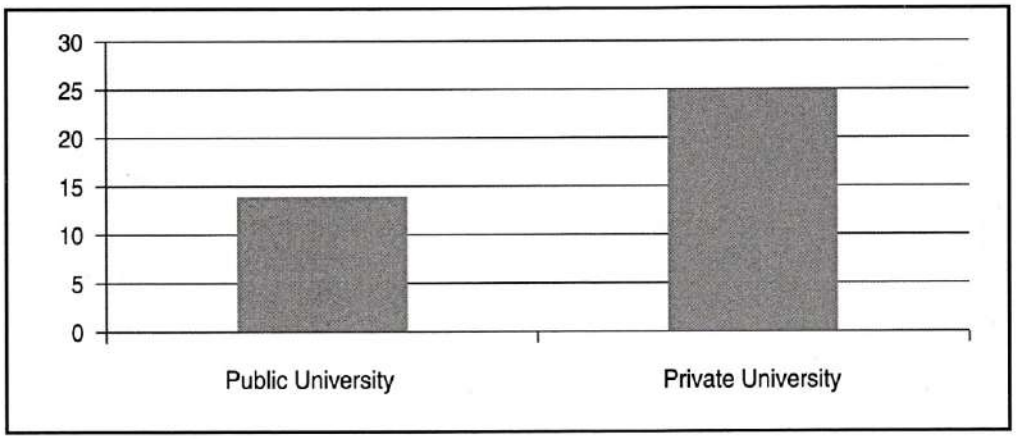


Figure 2:Geographical Spread of Universities in Sindh

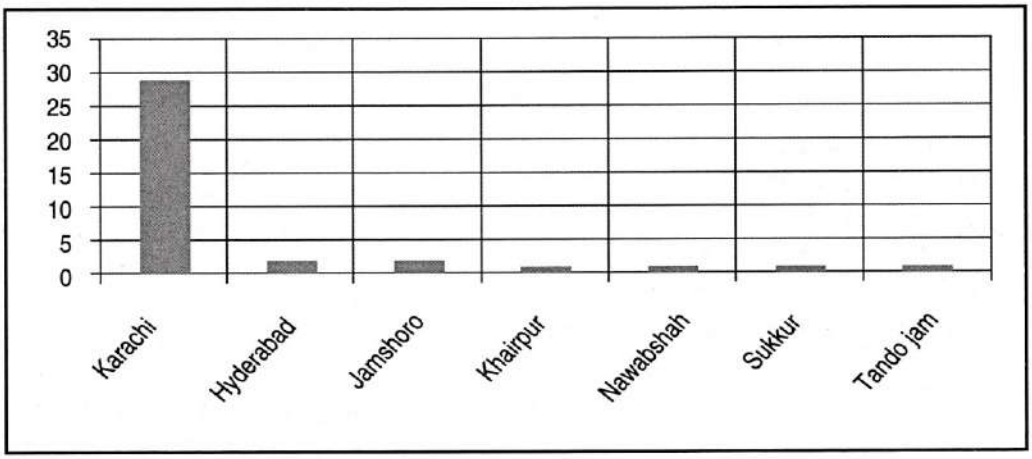


Figure 3: Center of Entrepreneurship Development at the Universities of Sindh

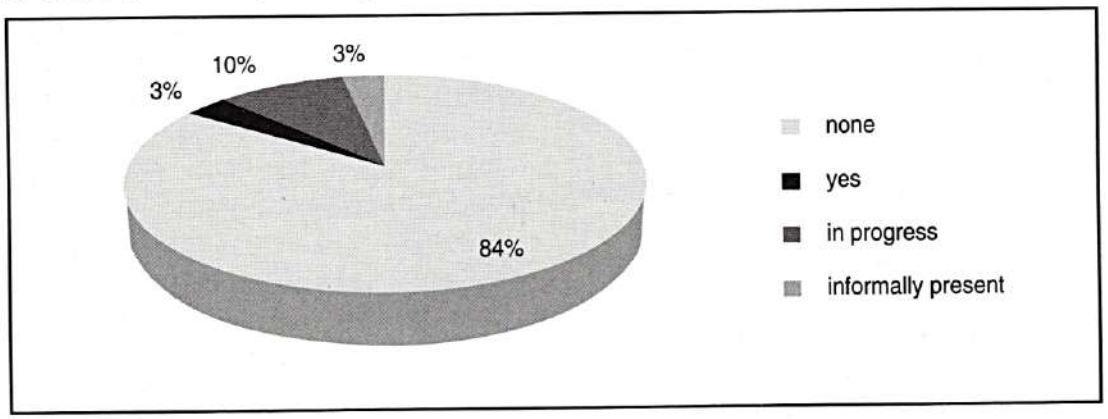
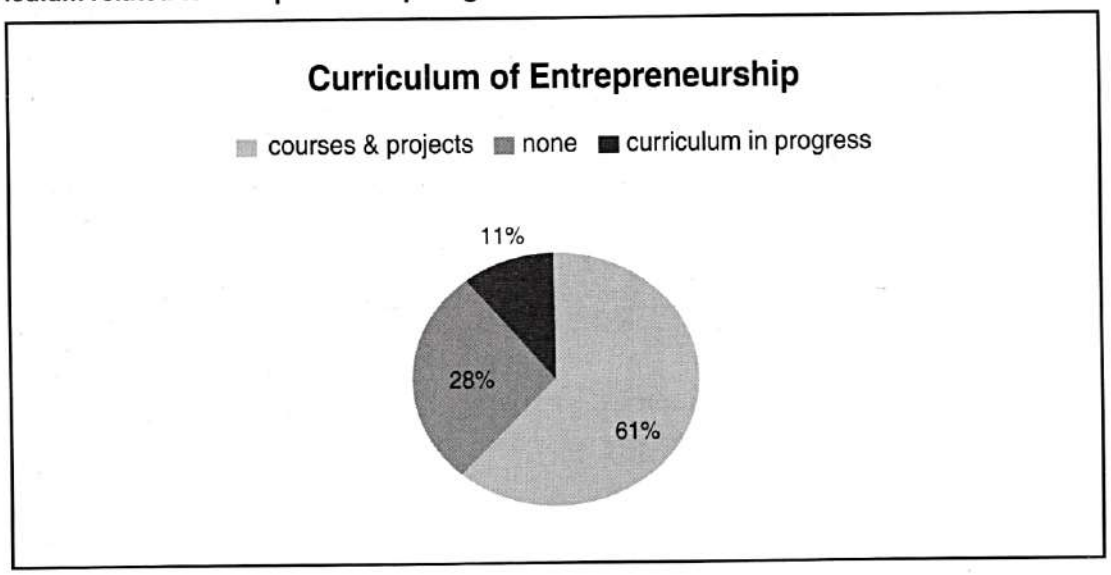


Figure 4: Curriculum related to Entrepreneurship taught in the Universities of Sindh



IBA-Karachi,is in the process of structuring curriculum for entrepreneurship development, which is to be based on local market dynamics. This is why they have signed a MoU with Babson College for entrepreneurship, in order to make an exclusive department for entrepreneurship research, training, advisory service and sharing the appropriate knowledgewith the students in this discipline. IBA-Sukkur will follow the same in collaboration with IBA-Karachi.

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST) had taken a lead in signing MoU with Australian Institute of Entrepreneurship (AIE), so far the work is in process. SZABIST, after conducting a successful training program of Benazir Bhutto Shaheed Youth Development Program, as a partner, to The Small and Medium Enterprises Development Authority(SMEDA), came up with the idea that curriculum should not be just mugging up of theories it should include field trips, guest speaker session, setting up small ventures with low capital under the supervision of a faculty, thereby learning practically. It should also include basic understanding of laws, policies, bank or capital access, industry specific knowledge. Newport University and PAF-KIET believed in experience based learning, they made their students to set up their small ventures and monitored by the faculty in charge. PAF-KIET has initiated the project entrepreneurship program i.e. theory plus project, which includes opening and running a stall in Sunday Bazar.

85% of the universities in Sindh province have no incubation centers, where as 6% (PAF-KIET and FAST-NU)are reported to have incubation centers namely in collaboration with Microsoft. Newport and IBA-Karachi are in process of making one. At SZABIST, the ZAB Solution department works as an incubator for final year students but so far no concrete progress in technology transfer has been established. Newport has informal setup of incubation center.

77% of the universities are not imparting any industrial education, training and research partnerships whereas 23% are actively participating

Figure 5: Incubation Centers in the Universities of Sindh

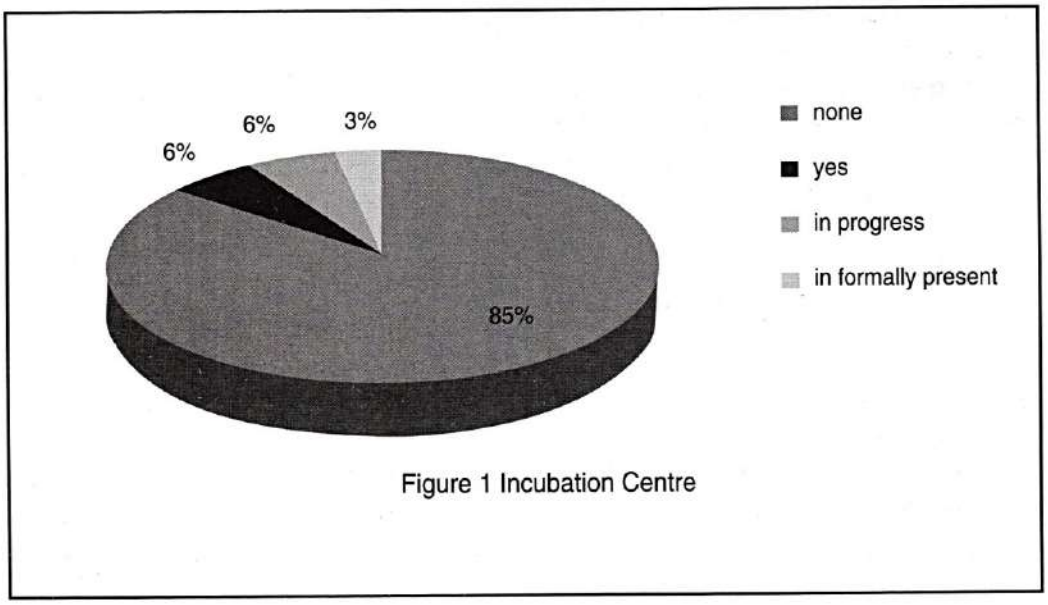
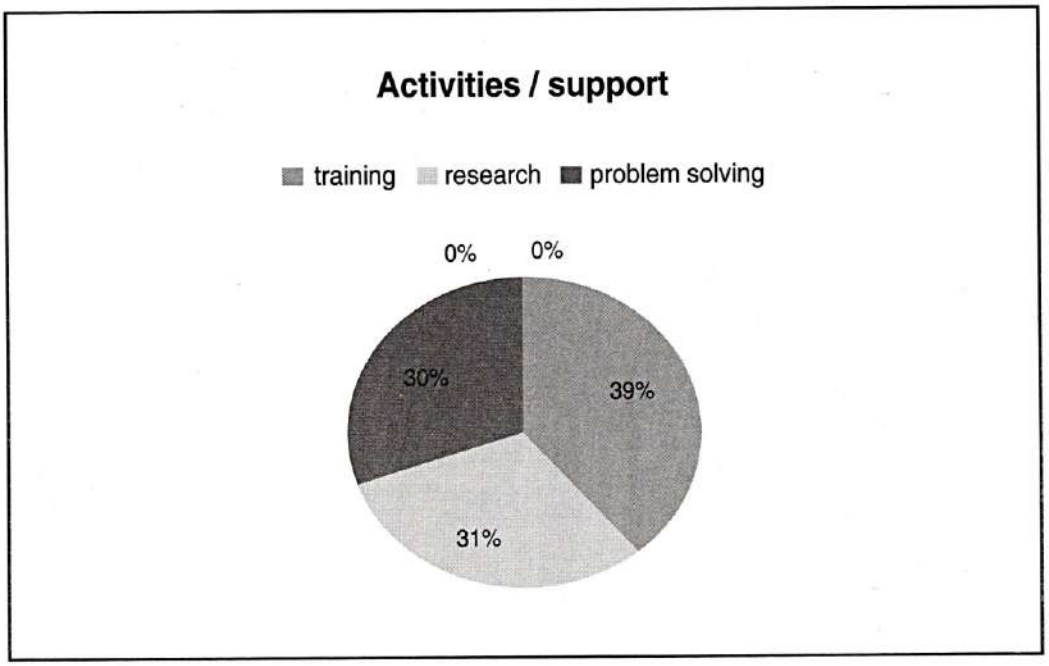


Figure 6: Entrepreneurial Activities of Universities in Sindh



in it, namely Bahria University, FAST-NU, IBA-Karachi, College of Business Management (CBM), Greenwich and SZABIST are providing industry education, and requires training. At Hamdard University, HURCCON (Hamdard University Research and Consultancy Consortium) and Centre of Excellence for Training and Development (CETAD) provide industrial education, training and research. The program of INVENT organized by IBAKHI was well responded by the industry, they showed interest in training, research, teaching and helping in residence faculty to upgrade their knowledge base. Newport University has provided training to some Government organization.

SZABIST provides the training to Small and Medium Enterprise Development Authority (SMEDA) sponsored individuals in terms of training and offering core courses of business. Newport University and PAF-KIET support the community based entrepreneurs. At Newports Institute, students are encouraged to provide assistance and training to the community individuals for starting a small venture, they raise funds for them and help them to initiate and on quarterly basis they monitor their progress. At PAF-KIET the students are directed to start their small set ups in Sunday Bazaar as part of their curriculum and the university monitors it. As a result majority

of the students after graduating, continue with their small set ups. CBM in past in collaboration with Shell Taameer program, has conducted a community based entrepreneurship development program with providing training to the community members, in order to empower the lower strata. "It was a successful program" said the respondent.

In the context of external entrepreneurs, such support for new ventures does not exist in any university. One respondent highlighted that our society is not very interactive; they do not share the ideas in fear of being copied, although an effective copyright laws and patents and intellectual rights facility is available through Trade Marks Registry Department. Only at IBA-KHI and IBA-Sukkur people do approach them for their assistance in their related business and these institutes provide training as per required. 34% of the universities are providing the industrial assistance and 32% are involved in problem solving activities.

Textile Institute of Pakistan (TIP) has established a research Centre by the name of "Textile research and innovation Centre (TRIC)" for this purpose. They are providing the expertise but not to full extent. KIET has been contacted by Microsoft for problem solving issue which was resolved. IBA-Karachi and Greenwich has been involved in this process but at a low magnitude. At Karachi University, the H.E.J. Research Institute of Chemistry (University of Karachi) has established a world-class industrial analytical center. This project was supported by the Ministry of Science and Technology, and Higher Education Commission (H.E.J,2010). The center provides assistance to industries like Pharmaceutical companies, Army, Unilever Pakistan by testing the quality of their products and verifies the validity of their raw material (H.E.J,2010). FAST-NU has signed MoU with Oratech for research in software department.

83% of all private and public universities are teaching business, engineering, science and technology, textile, art and architecture have comprehensive executive development programs; they have made it compulsory for each student to take internships as a prerequisite for their degree. Moreover, the importance of internship is highlighted by one of the respondent that by providing the opportunity of internship to the students we provide them a platform to take risk and initiative in carrying out any new project, in this way they learn to be Entrepreneur, who can lead to be an entrepreneur.

Few respondents stated that in engineering field most ideas are capital intensive and by doing internships students get the firsthand knowledge of the rigorous procedures that are present in the business world. IBAKHI, have a strong base of internships and job placement, other business universities are in line with the same practices. SZABIST is also active in grooming their students for the internships by having feedbacks from the employers and internees.

While the researcher was conducting this research no technology transfer or new product development had taken place in the 96% of sample

Figure 7: Entrepreneurial Activity Support at the Universities of Sindh

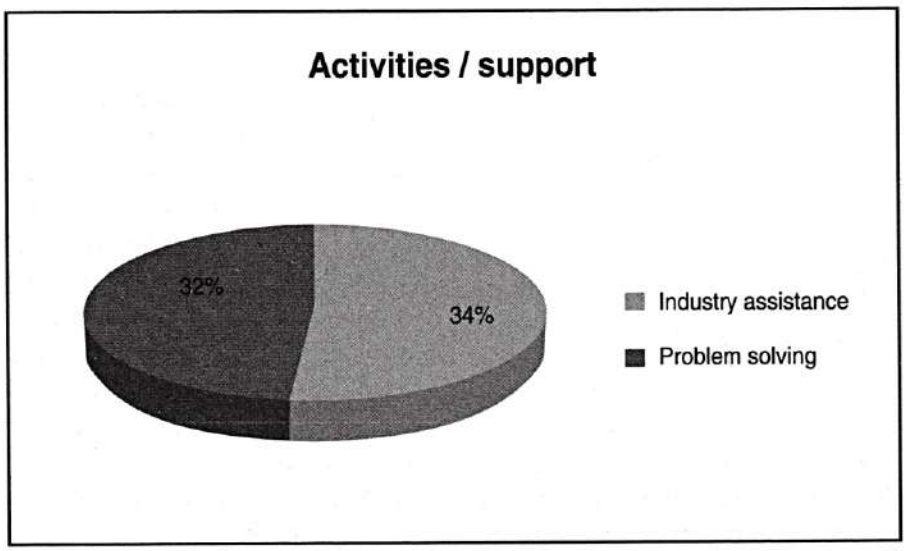
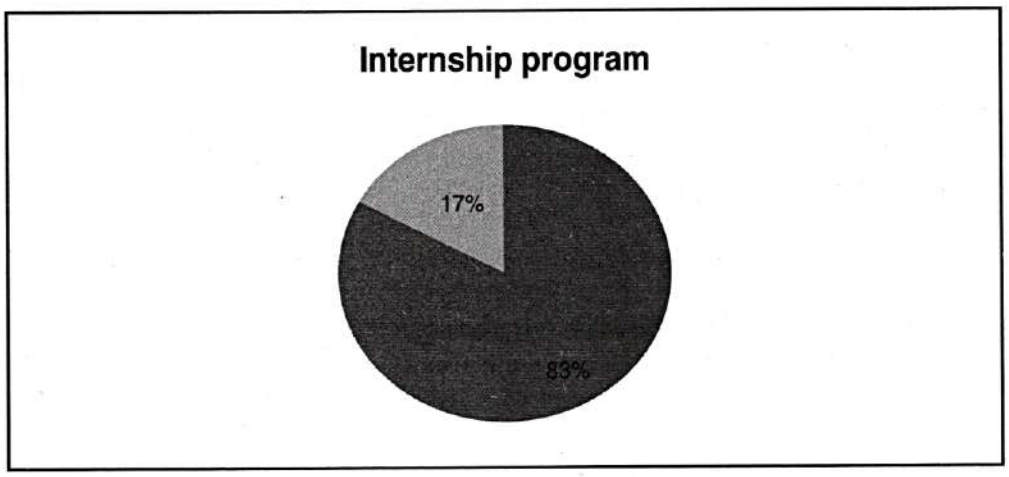


Figure 8: Internship Program in the Universities of Sindh



universities. Hamdard University has been reported to have the technology transfer facility in its Engineering Department, in the area of Solar Energy. TRIC in Textile Institute of Pakistan (TIP) is currently working on four projects, in collaboration with the industry. Through the telephonic interview with H.E.J. personnel at the University of Karachi, it was learned that the university is currently supplying orchids in the local market and will soon be in a position to export it. H.E.J. has all the potential for technology transfer.

90%of the responding universities do not have any reward system for the faculty. This could be a major reason that research and technology transfer does not exist as observedby respondents from Textile Institute of Pakistan (TIP), University of Karachi (UoK) and CBM: "Faculty involved in research are given lesser work load and a certain weight is also given in the faculty performance evaluation which is linked with annual increments/promotions"

The research unfolds that in Sindh only 6% are directly involved in entrepreneurship development, while rest of 94% are carrying out some activities in relation to the subject. Either they have entrepreneurship societies who are conducting workshops and research, or they are working with Shell Taameer by giving out training to the community or assisting in setting up small ventures to the individuals in the community. Guest Speaker sessions, based on live success cases of entrepreneurs, project-based learning, are regularly conducted in order to make them aware of the importance of this subject.

IBA Karachi organized business plan competition by the name of "Invent", which was highly appreciated and participated across the board by all universities. On the same pattern a similar program is also organized annually by FAST-NU by the name of ProComm (national contest on Business plan) along with funding on the basis of feasibility of the project. Such plans encourage students to participate and come up with better ideas. A students' society by the name of "Textile Institute Entrepreneurship Society (TIES)" has been formed to promote entrepreneurship development among the students.

Conclusion and Recommendations

The current era is experiencing a paradigm shift in the job markets. There is stagnation in the job markets not only internationally, but also significantly in Pakistan. The industry is in the maturity stage and entrepreneurship development is the answer to the current economic imbroglio. The research was carried out to explore the contribution in the entrepreneurship development of universities in Sindh. Universities in Pakistan have a vital role to play in the job creation and economic development, because we have 60% of young population between the ages of 15 to 30 years. If they are groomed and nurtured in an appropriate manner a promising bright future will await them.

To conclude the research, the role of universities in enterprise development in Sindh, at this stage, does not reflect any significant contribution. Though three universities are engaged in entrepreneurial development activities, one university has already started a proper set up and others are in process of setting up.. The dilemma in Pakistan is that research and development is not a preferred discipline, as a result the required innovation or startup businesses of new ideas and concepts are rare phenomena. In the context of Sindh, which has the strategic significance not only in agriculture, but also chiefly in the economy of Pakistan. As Karachi is the hub of

commercial and economic activities and hosts 29 universities, it can reshape the role of universities in enterprise development in Sindh.

Universities at present are not in line with the current demand factor yet they are cognizant, except for few universities, wherein the officials are not aware of the word incubation or enterprise development. Their offering of entrepreneurship as one course and doing rudimentary project work does not suffice the need for entrepreneurship development. Training, internships and industry collaboration along with the micro finance banks can promote the concept of self-employment and entrepreneurship.

Many universities highlighted that the industry do appreciate the research work of the faculty and students but when it comes to the transfer of technology or repositioning or introducing new product or service in the market with reference to their work is completely ignored by the industry. 83% of all private and public universities teaching business, engineering, science and technology, textile, art and architecture have comprehensive executive development programs. Ironically, so far no technology transfer or new product development has taken place.

In Pakistan, primarily the laws of copy rights and patent rights are not followed. Industrialist like to import products with an excuse that it is not possibly made in the local market, which is another factor of discouraging the universities to become research-based incubators for new ventures.

Another factor that was highlighted by this research is the lack of corporate social responsibility being exercised by the industry except Shell Pakistan, which is involved in community based entrepreneurship training through workshops, seminars and training by signing MoU's with the leading business and IT based schools in Sindh. In order to proactively disseminating enterprise development such type of initiative can shape up the role of universities in this region. In the light of researchers' observations during the study they came to the conclusion that lack of awareness and no holistic view of the university role lead to the stagnant concept of just educating the students as job seekers. In this pretext the major factorsare: cultural, socioeconomic class, lack of assistance by government and complete ignorance on the part of industry, which are discouraging the growth of entrepreneurship. Nevertheless, the country needs to invest in education; therefore creating job creators is also an art and science, which has to be addressed in full swing. The universities role in Sindh has to be revisited as the new era demands for more entrepreneurial development to address the growing unemployment and despondency among the masses.

After conducting the interviews and reviewing the available literature following are suggested:

HEC should direct the universities of similar discipline to share the curriculum in order to promote collaboration in research work, in accordance with the market dynamics and industrial need based curriculum.

In Sindh, fourteen large public universities can easily be transformed into a hub of Entrepreneurship development and research based entities, not only in the fields of computer science and technology but also in medical science, agricultural science, as well as other fields of engineering, thereby promoting the entrepreneurship sciences.

The culture of internships should be made stronger and comprehensive, especially in the public universities, for the development and nurturing of intra-preneurship and finally entrepreneurship

Advanced Technology can be used for training students from international universities via satellite systems, thus giving them international exposure and imparting entrepreneurship skills.

Faculty should be given rewards on the basis of their research work and copy rights, patent rights, and intellectual rights policy should be adopted.

Areas of Further Research:

- Role of universities in enterprise development in Pakistan
- Technology transfer in Pakistani university
- Social Dimensions of Entrepreneurship in Pakistan

References

Akhtar, A., Topping, K.J. & Tariq, R.H. (2010),"*Entrepreneurial attributes among postgraduate students of a Pakistani university*", Vol. 7, No.5 (Serial No.66) US-China Education Review, p66

Bercovitz, J.& Feldman, M. (2006),"*Entrepreneurial Universities and Technology Transfer: A Conceptual Framework for Understanding Knowledge-Based Economic Development*", Journal of Technology Transfer, Vol. 31, pp 175188.

Chakrabarti, A.,& Rice,M.(2003),"*Changing Roles of Universities in Developing Entrepreneurial Regions: The Case of Finland and the US*",MIT IPC Working Paper IPC-03-003

Corona, L., J,Doutriaux&Mian, S. (2006),"*Building Knowledge Regions in North America, Cheltenham, Canada*", Paper no. 11, pp 75-106

CSF. (2009),"*Competitive Support Fund Organization Government of Pakistan*", retrieved on 18thOct 2010, http://www.competitiveness.org.pk/

Davidson, P. (1991), "*Continued Entrepreneurship: Ability, Need, and Opportunity as determinants of Small Firm Growth*", Journal of Business Venturing, Vol. 16, pp. 405-29

David, A., Harper (2003),"*Foundations of Entrepreneurship and Economic Development*, New York: Routledge, p267

Economic Survey of Pakistan, (2013), Finance Division, Islamabad, Pakistan.

Gnyawali,D.R., Fogel,D.S.(1994), "*Environments for entrepreneurship development: key dimensions and research implications*", Entrepreneurship: Theory and Practice, Vol. 18,pp. 43-62

HEC(2010), Statistical Information unit, [Online] Accessed on 27th August, 2010 http://www.hec.gov.pk/QualityAssurance/Statistics.html

HEJ (2011), Institutes Prospectus, University of Karachi.

Katz, J.A. (2003),"*The chronology and intellectual trajectory of American entrepreneurship education*",Journal of Business Venturing,Vol. 18, No. 2, pp. 283-300.

Khan, S. A. (2008),"*Entrepreneurship Education in Pakistani Universities Post-Doctoral Research Report: School of Entrepreneurship and Business University of Essex Southend-on-Sea United Kingdom*", University of Essex Southend-on-Sea United Kingdom retrieved on 28-9-10.

Laghari, J. (2010),Interview to CNBC, TV, Pakistan.

Liyan,Z. (2005),"*Entrepreneurship Education within India's Higher Education System Springer*", Inc. Thailand ASF- e Journal No. 2, p102

Mian, S. (2006), "*Assessing Value-Added Contributions of University Technology Business Incubators to Tenant Firms,*" chapter in Technological Entrepreneurship: Institutions and Agents Involved in University Technology Transfer, Donald S. Siegel (Editor), Edward Elgar Publishers, MA: Northampton, pp 169-179.

Miner, A. S., Eesley, D. T., Devaughn, M.I., Thekla, R.P. (2001), The magic beanstalk vision: commercializing university inventions and research, in Claudia Bird Schoonhoven and Elaine Romanelli (eds.), The Entrepreneurial Dynamic. Stanford, CA: Stanford University Press.

Mian,S.A.(2006),"Can *'Entrepreneurial University' Model Help Pakistan Leapfrog in to the Knowledge Economy? Some Reflections*". www.pu.edu.pk accessed as on March 17, 2012

Ming, Y, C., Chan, C. (2004), "*Entrepreneurship Education in Malaysia*", Multimedia University, Malaysia.

Nelson, R.R. (2001),"*Observations on the post-BayhDole rise of patenting at American universities*", Journal of Technology Transfer, Vol. 26, No. 1/ 2, pp. 1319.

Nurmi, P. and Paso, K. (2007),"*Entrepreneurship in Finnish Universities, Small Business Institute, Business and Research Development Centre, Turku School of Economics, Turku, Finland Education & Training*, Vol. 49 No. 1, pp. 56-66

Schramm, C. J. (2004),"*Building Entrepreneurial Economies*", International Journal of Entrepreneurial Behavior& Research, Vol. 83, No. 4, pp. 104-115, http://www.jstor.org/stable/ 20034050Accessed: 27/08/2010

Slaughter (2001), "*Professional Valuesand the Allure of the Market*" Academia.

http://www.aaup.org/publications/Academe/01SO/so01sla.htm (Accessed on May 23, 2013)

Thurick, R.(1994),"*Small firms, entrepreneurship and economic growth*", Erasmus, University Rotterdam.

Tornatzky, L., Waugaman, P.G., and Gray, D.O. (2002),"*Innovation U: New University Roles in a Knowledge Economy*", Research Triangle Park Southern Growth Policy Board.

Bibliography

Kaufmann, D., Schwartz, D., Frenkel, A., Shefer, D. (2010),"*The Role of Location and Regional Networks for Biotechnology Firms in Israe*"1, England and Wales European Planning Studies, http://www.informaworld.com/smpp/ title~content=t713417253. Accessed by: [PERI Pakistan] On: 27 August 2010