

Measuring the Training Effectiveness in University-Industry Linkages: A Case of Pakistan

Syed Ali Ashiq Kirmani^{1,2}, Sikandar Khan², Wasim Ahmad³, Aqsa Sajjad⁴

¹Department of Management Sciences, COMSATS Institute of Information Technology, Vehari, Pakistan.

²Superior University, Lahore, Pakistan.

³MS Scholar, Department of Management Sciences, COMSATS Institute of Information Technology, Sahiwal, Pakistan.

⁴Research Associate, Department of Management Sciences, COMSATS Institute of Information Technology, Vehari, Pakistan.

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ABSTRACT

Pakistan is paying attention in advancement of Science, technology and innovation policies which helps building solid university and industry linkages. As operating cost in Pakistan is increasing constantly, so industries feel it to be going in loss. Indeed, it raises the burden on universities to swap old trends of industries with new technological and innovative skills in Industrial sector of Pakistan. The objective of this study is to identify certain aspects for the training of industrial sector through universities of the particular region. Previous literature shows low interest of university, industry and government collaboration. The study is significant as there is paucity of research work available in such sector of Pakistan. Therefore, this study is restricted to uncover limited explanations of certain aspects of university and industry linkages. A structured focus group method through different managers, technicians from industrial side and academicians from university side at COMSATS Institute of Information Technology, Vehari helps this study to identify certain factors that determine thriving collaboration among university and industry. In the end, a framework is suggested that helps training the employees by academicians. Implications of this study may be used in future at a higher level of university industry linkages.

KEYWORDS: Training effectiveness, university-industry linkages, Pakistan.

1. INTRODUCTION

Universities are emerged as central actors in knowledge based economies and expected to play pivotal role in sprucing technological change and innovation [1]. American universities were considered to be one of the leading universities of the globe entitled with 'green university' which means that a student must implement the curriculum been taught by the university. Then they shifted towards 'entrepreneurial university' that helps in the development of university industry linkages and in this era, technology is at its peak [7]. Many European, Asian Pacific and Latin American universities are following the same pattern but South Asian universities are not keeping pace due lack of trainers to train and communicate between University and industry[3]. By measuring the importance of UI training, researchers believe that Silicon Valley is just because of Stanford university, Oxford University have started building their own electric car, University of Waterloo Canada are still focusing on entrepreneurial software development programs, therefore, most of the students are hired by Microsoft itself [7].

Because of this university industry linkage, universities started getting funds from the companies as they use to get the funds for the product development and innovation, plus, they earned much more money from intellectual property rights [4][5][6]. From university point of view, they use to train their faculty and students and use to get at the heights of innovation [3]. On the other side, firms get an innovative idea, technology or product at much cheaper rate. So it is a win-win situation from both sides. By the development of university industry linkages, it helps not only the local economy but global linkages also help university to transfer technology at its best. For all this, Barmwell claimed that entrepreneurial culture within university should be developed [7]. Now most of the American universities are moving towards 'innovation universities'.

In Pakistan, most of the curriculum and education model is adopted by Oxford University which mainly focuses on the theoretical part. So a research culture in universities among students was never been established earlier. At the time of independence of Pakistan, there was a single university in Pakistan and there was no gradual development in this sector. As a result, in universities, there are only few teachers that are limited to basic research. Arabella Bhutto, Pir Irfanullah Rashdi and Qazi Moinuddin Abro reported that Pakistan has not defined its innovation policy yet. Later in November 2012, Ministry of Science and Technology (MoST) drafted its innovation policy, in which, the importance of university-industry linkages is realized. Furthermore, it is also mentioned that personnel in this sector are trained which would be training accordingly.

Corresponding Author: Syed Ali Ashiq Kirmani, Department of Management Sciences, COMSATS Institute of Information Technology, Vehari, Pakistan. Email: alikirmani@ciitvehari.edu.pk

Corresponding Author 2: Wasim Ahmad, Department of Management Sciences, COMSATS Institute of Information Technology, Sahiwal, Pakistan. Email: dms.ciit@gmail.com

Usually, underdeveloped countries contribute at least 1% of their GDP on research but in Pakistan, it ranges from 0.1 to 0.5% in different regimes [9]. The Federal Bureau of Statistics released the Pakistan Labour Force Survey 2011, which shows the unemployment rate rising to 6% in July 2011, compared to 5.6% a year ago. The size of the total workforce was 57.3 million. The total number of unemployed rose by 280,000 people during the past year to 3.4 million. Unemployment for women, for example, declined from 9.5% last year to 8.9% this year. The corresponding figures for men rose from 4.4% to 5.1% [10].

Since 2009, there was not even a single incubator in Pakistan that developed and transfer technology to Pakistani industries. Still National University of Sciences & Technology (NUST) are among one who have developed university industry linkages at such level, so that they are in the position to transfer technology. According to Arabella [9], Pakistan still does not developed science, technology and innovation policy. Moreover, she mentions different indicators regarding innovation policy. Some authors in Pakistan suggest adopting 'Triple Helix Model' but still no work has been done in this area. Some firms from COMSATS Institute of Information Technology are graduated as incubators and use to arrange Business plan competitions for the innovative ideas where they use to call different companies, but still no further comprehensive work on Intellectual Property rights and funding is done yet. Therefore, there is an ultimate need to implement strategies through skilled and experienced trainers related to the partnership between universities and industry that can prevail over the theoretical curriculum and actual tribulations in Pakistan.

2. RESEARCH INSTRUMENT

Primary data is collected through structured focus group observations while secondary data is obtained from books, web information, non government organizations and articles.

Focus group activity is conducted in COMSATS Institute of Information Technology by a trained moderator in structured and natural manner with a small group of respondents.

3. RESULTS AND DISCUSSION

This section comprises of results from interpretation of data collected through individual interviews and focus group discussion. Based on the interviews and discussion group, following information is significant to the study. Table 1 shows the demographic information of participants in the focus group.

Table 1: Classifications of respondents

Status	Number of Respondents	Frequency (%)	
Teachers	3	3/17 (17.64)	
	Local Co.	MNCs	
Managers	2	4	6/17 (35.29)
Technicians	7	1	8/17 (47.05)
Total	17		

An invitation was sent to 27 local firms' and MNCs' managers and technicians, and 5 teachers from university were invited, out of which, 14 managers & technicians, and 3 teachers joined the discussion. Results show that most of the representatives are technicians, as in the city like Vehari, most of the firms are local and they are doing more than one duties. Results also show that 42.85% of the managers of the firms (local & MNC) joined the discussion as they are keen to take interest in building relationship with academia. Teachers were also included in the discussion to get the perception from academia, what they think about the firms.

Table 2: Distribution of respondents by level of understanding

Level of understanding	High	Medium	Low	Total
Frequency (%)	8/17 (47.05)	6/17 (35.29)	3/17 (17.64)	17

Respondents were categorized Low, Medium and High on the basis of their level of understanding about University Industry Linkages. Eight participants recorded high level of understanding because some participants from corporate sector know much about University Industry Linkages because of their experience and few from education sector have also high level due to education level and experience. Few respondents (17.64%) have low understanding about university industry linkages. Most of them belong to local firms and among local firms, the majorities were technicians. Some respondents (15%) were reluctant to attend the session as they said that they were in the session to replace their colleagues. The remaining 45% of the representatives agreed that the training session was relevant to their field of work and expertise.

Based on the information received from respondents revealed contributions towards socio-economic development made by different organizations.

- Demographic information

- Training goals
- Overall training process
- Individual future collaboration intention

4. DISCUSSION

The concept of university-industry linkages is new in Pakistan as most of the respondents think that people are doing things in different ways and there is a huge gap between university and linkage. In such exploratory study, there were different aspects which, the respondents think need to be taken care of for the strong university industry bounding. Numerous facets have been recognized and later classified into the industrial space as well as the institutional space. Hence, before the successful partnership can be counterfeited, these spaces could be scrutinized properly.

The industrial gaps already identified can be summarized into:

- The industry is not paying attention to put finance for any kind of training programs as such culture has not been established yet.
- Paucity of confidence, trust and interest.
- No research facilities available in industry.
- No diverse experienced managers.
- Lack of innovation culture in industry.

There are some issues which set to be true but there are many problems which are created being having small-size organizations of large quantities in Pakistan. Having small-size organizations, they do not engage appositely due to paucity of funds and work force. Thus, they are not properly recruited, selected and trained accordingly.

The institutional gaps on the other hand consisted of issues like:

- Trainers themselves are not capable to train industry employees as there is no research addressing the exact problem of Pakistan.
- The University is not enhancing the culture of research due to which, capable undergraduates are unable to give their best of it.
- Trainers are not effective while delivering the knowledge.
- Mostly the universities' trainers are not implementing the theory during training.
- Universities and industries do not cater training environment due to which, trainees and trainers cannot communicate easily.
- Trainers of universities also do not take care of length/duration of training.
- Latest market information of competitors inside and outside the country play an important role in training which as a result play effective role for productivity, but it is still missing in Pakistan.
- Both the parties (university-industry) do not bother to see whether trainees' prior knowledge is enough to get the training or not.
- The lab and other facilities are not furnishing the needs of industry.
- The university education curriculum is not made according to fulfill the needs of industry.

As university is playing a pivotal role in engaging students to create and disseminate knowledge but most of it is in the traditional manner. This is one of the reasons due to which industry is not having a cohesive bonding with university. Infact, some of the universities like NUST, LUMS and CIIT are trying to filling the communication gap but still they are far way behind.

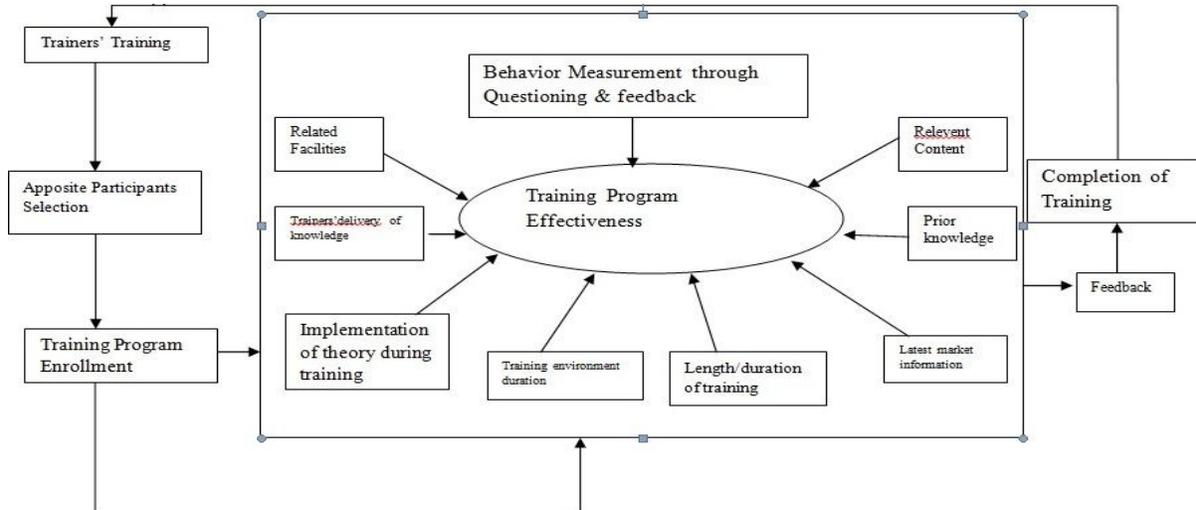
The major role of university is to create and disseminate information in conventional academic style, so it is easy for university to give the solution of industry by developing better understanding. Some of the universities have started creating separate offices for industries' networking which results in smooth productivity of both universities' academia and industries' workforce. In result of more communication, trainers get to know about the better and latest information of industries and give solution more effectively. Universities like University of Waterloo (UW), Canada likely to get more employees from industries to cater industrial needs via commercialization like 'Samsung' was a university product of Korea. Latest research work is also very helpful for the industries if it is properly implemented.

Furthermore, this collaboration among university and industry can be more effective if government play its role and start 'centers of excellence' in universities.

After the effective discussion, it was found that effective trainings are necessary for the university-industry partnership and to have a sustainable partnership among both the parties, following framework is apposite under Pakistan's circumstances.

5. CONCLUSION

The basic task of university is to educate people along with the relevant research for excellence. In result, university provides and develop industry-oriented, competent workforce for industry. In fact, this educational model is still missing in most of the universities of Pakistan. But universities are capable enough if they provide skilled human resource to both university and then industry. This study is also of the view that if both the parties (university & industry) have strong interaction and communication, it may result in sustainable partnership.



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REFERENCES

1. Etzkowitz, H. (2004). The evolution of the entrepreneurial university. *International Journal of Technology and Globalization*, Vol. 1, pp.64-77.
2. Claudia De Fuentes, Gabriela Dutrénit (2012). Best channels of academia–industry interaction for long-term benefit. *Research Policy*
3. Kirby, D.A. (2006). Creating entrepreneurial universities in the UK: Applying entrepreneurship theory to practice. *Journal of Technology Transfer*, Vol. 31, No. 5, pp. 599-603.
4. Perkmann, M., King, Z., & Pavelin, S. (2011). Engaging excellence? Effects of faculty quality on university engagement with industry. *Research Policy*, 40, 539-552.
5. Sugandhavanija, P., Sukchai, S., Ketjoy,N., & Klongboonjit, S. (2010). Determination of Effective University –Industry Joint Research for Photovoltaic Technology Transfer(UIJRPTT) in Thailand. *Renewable Energy*, 36, 600-607.
6. Thursby, J., Fuller, A., & Thursby, M. (2009). US faculty patenting: inside and outside the university. *Research Policy*, 38 (1), 14–25.
7. Bramwell, Allison,, Wolfe, David A. (2008). Universities and regional economic development: The entrepreneurial University of Waterloo. *Research Policy*, 37, 75-87
8. Naim, S.T.K. (2001) ‘Science and Technology Development in Pakistan’, *Science, Technology & Society*, 6(1), pp.97-132.
9. Arabella Bhutto, Pir Irfanullah Rashdi and Qazi Moinuddin Abro(2012). Indicators for Science and Technology in Pakistan: Entering the science, technology and innovation paradigm, *Science and Public Policy*, 39, pp. 1-12
10. (2010-11). Labour Force Suvey. Federal Bureau of Statistics, Statistics Division, Government of Pakistan.