ACADEME-INDUSTRY PARTNERSHIP IN THE PHILIPPINES: NATURE, BENEFITS AND PROBLEMS

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Abstract

This study takes into account the level of involvement of Higher Education Institutions (HEIs) in the Philippines, particularly those located in the National Capital Region on academe-industry partnership. Specifically, it identified the nature of Academe-Industry Partnership (AIP) of HEIs, the areas and extent of partnership, the factors which influence the partnership, the mechanism of partnership and the extent of benefits gained in the academe-industry partnership. Equally, the study covered the problems encountered by HEIs on their academe-industry partnership engagement.

Key Words: *Academe-Industry Partnership, Higher Education Institutions, Collaborations*

Introduction

At the dawn of the 21st century, people have been left with a world that is more fluid, fragmented, and multipolar than ever before creating a more diverse yet closer society. At present, they live in a globe where the national and multinational, state and market, and public and private coexist (Gupta, 2005). Collaborative efforts, therefore, among the society's major stakeholders (the public and the private, the state and the market) should be deep enough to ensure stronghold development. In the

academe, these efforts between the educational institutions and various industries are known as linkages or partnerships.

Academe and industry which for a long time have been operating in separate domains, are rapidly inching closer to each other to create synergies. The constantly changing paradigms, in response to growing complexity of the various industries today, have necessitated these two to come closer. These came about because university functions are not confined to teaching alone, but also to research and extension activities that require linkages or partnerships. Higher education institutions both contribute skilled human resources to industry and help in various intangible ways.

Partnerships are vital for any educational institution to reduce its needs on physical resources (e.g., equipment, facilities, laboratories, and the like), secure training and employment for students and graduates, increase the responsiveness of curricular offerings to industry needs, and project a respectable image of the institution. Also, the industry collaborates with universities for prospective workers, managers, and other workforce needs. These partnerships may include executives and managers' (from the industry) involvement in the design or revision of curricula of existing or new programs, industry specialists serving as speakers in academic trainings, faculty engaging in hands-on training on industry facilities, and industry managers or supervisors teaching as faculty members in the university.

In today's global economy, a productive interface between the academe and the industry is a critical requirement. Failure to recognize each other's roles may result in the mismatch of demand and supply of workforce much less lead further to disruption in the job market ("Industry-Academia Interface - Perspectives And Practices," 2009).

Thus, at present, industries do not only partner with other companies, but with universities as well.

Besides their primary role as centers of knowledge, universities are also viewed as economic engines that contribute to local and regional growth (Academic-Industry Collaboration: Best Practice, 2009). Industries have traditionally sought partnerships with universities as means to identify and train future employees or workers. Partnerships have been entered into by industries to acquire new knowledge and technologies that can be translated into products and other resources. Moreover twinnings and collaborations further provide opportunities for regional and economic development, with both the academe and the industry contributing their individual strengths to achieve a collective outcome (Wizeman, 2010).

Background of the Study

In developing countries such as the Philippines, academe-industry partnership has been advocated for the past years. This began in considering of one of the reports of the Congressional Commission on Education (EDCOM) which showed that higher education was characterized by: a.) large enrolment; b.) imbalanced distribution; c.) under investment and poor quality; d.) a mismatch between programs and graduates, and between employment and society needs; and e.) limited and underdeveloped graduate education. Since the establishment of the Commission on Higher Education (CHED) in 1994 by Republic Act No. 7722, several inroads have been made in higher education in the Philippines. Efforts have been intensified to improve the quality of education by reaching, better yet by benchmarking with international standards. In fact the CHED has taken several measures to address the issue of quality and relevance of education offered by higher education

institutions. These initiatives directly include the strengthening of the accreditation program, international benchmarking, and the formation of the Centers of Excellence (COE) and Centers of Development (COD). Indirectly involved in all these initiatives is setting up industry linkages, one of the criteria being encouraged and monitored by CHED. Other criteria being considered as characteristics of good schools cover qualifications of administration, teaching and non-teaching staff, library holdings, and physical facilities. Furthermore, CHED in its memorandum order of 2011 clearly stated that Higher Education Institutions (HEIs) should come up with their creative academe-industry linkage plan appropriate to the degree program and /or general education (GE) component (CMO, Series of 2011).

The leading accrediting agencies in the country include the Philippine Accrediting Agency of Schools, Colleges, and Universities (PAASCU), the Philippine Association and Universities Commission on Accreditation (PACUCOA), the Association of Christian Schools and Colleges (ACSC), the Association of Local Colleges and Universities Commission on Accreditation (ALCUCOA) and the Accrediting Agencies of Chartered Colleges and Universities in the Philippines (AACCUP). All consider academe-linkages as important factor for awarding accreditation status to the HEI members, thus further rationalizing the importance of strong linkages for the academe.

Since 1994, various efforts on Academe-Industry Partnership (AIP) in the Philippines have been initiated; some have succeeded, others have failed. However, these experiences served as bases for the emergence of new partnership models and new research thrusts and priorities (Medado, 2008). One of the research priority areas of the CHED Zonal Research Center (ZRC) in the National Capital Region focused on academe-industry linkage (DLSU-CHED-ZRC, 2010).

Funding support is given to collaborative research projects in this area to show the importance of documenting academe-industry partnerships and analyzing results of such collaborations. Moreover, this helps in establishing uniform policies on academe-industry partnerships that contribute to developing and strengthening partnerships between the universities and companies/corporation.

Universities, industry organizations, and government agencies have traditionally maintained informal ways of working together, in form of student internships, faculty exchanges, among others. By the late 90s, the existence of relations between higher education institutions and industry became a common and wildly accepted phenomenon. It should be mentioned, however, at the outset, that academe-industry relations comprise a wide range of very different formats. A particular type of higher education institutions may be linked to major high-tech corporations for multi-year joint research and development just as a small regional school may collaborate with a small company to provide technical assistance to upgrade existing level technology and management techniques. Obviously, the management of such very diverse relations and the benefits gained from it will be very different.

Many academic institutions, particularly in the tertiary levels are engaged in various collaborations with different industry-partners. Tansinsin (2005) named some of the state and private universities engaged in such partnership: the University of the Philippines, University of Santo. Tomas, Ateneo de Manila University, De la Salle University, Technological University of the Philippines, San Carlos University, Central Philippine University, Polytechnic University of the Philippines, Mapua Institute of Technology, Adamson University, Ateneo de Davao University, Xavier University, Mindanao State University-Iligan Institute

of Technology, Far Eastern University, Leyte State University, Mariano Marcos Memorial State University, Bulacan State University, and others.

The university/academe–industry partnership has slowly become the buzzword in the academic world to make graduates become more aware of the real situation so as to direct their interest in assisting the industry in improving products and services (Tansinsin, 2005). Both parties gain benefits from the partnership and may help improve each other's performance in their respective fields of discipline. CHED decided to focus on academe–industry linkage as one of its major areas based upon its mandate to support academic institutions in their research efforts. While the Philippine economy requires highly skilled knowledge workers, the role of institutions in producing competent graduates has turned more serious and urgent, thus, the need to establish a strong linkage between the industries and the institutions has been emphasized. Furthermore, Villegas (2009) held that in the tertiary level, one of the ways to improve the effectiveness of the educational process is to forge a closer symbiotic relationship between academe and industry.

Much has been said about the mutual benefits of school relations with industry (Aromin 1996; Mousa, 2001; Partners, 2006; Casquejo, 2009 and Mabazza, 2009). Much has also been explained about the factors that need to be considered for a successful collaboration (Ynigo, 2002; Tansinsin, 2005 and Medado, 2008). Even experts agree that what has been cited about the attractiveness of partnership is true and that many schools have progressed quickly because of this. They, however, are hardly documented in the local literature (Otterberg and Timpane, 1996) as the same experts have once lamented over the absence of a central referral point with current and complete knowledge about the competencies of partnership programs. They further recommended that the data bases concerning initiatives and performances of academe-

industry linkages be established (Aromin 1996; Mousa, 2001; Navarro, 2001; Tansinsin 2005; Casquejo, 2009 and Mabazza, 2009) which the present study seeks to contribute in the growing body of knowledge.

Though this study does not claim to be comprehensive, it is hoped that it can serve as a road map for higher education institutions seeking to stimulate, start, and nurture partnerships with industries.

Research Methodology

Applying the quantitative-descriptive research approach, the study measured the level of involvement of HEIs in their engagement in academe-industry partnership using specific criteria and a modified measurement instrument. The study collected the quantitative data from eighty-four (84) randomly selected HEIs in NCR represented by university and college administrators or their representatives as research respondents select presidents, chancellors, vice-presidents, vice chancellors, directors, school administrators, and deans of the institution.

The research generated pertinent information using an eight-page researcher-designed and expert-validated instrument, its sub–items based on the related literature: Academe-Industry Partnership Study in CHED-ZRC-NCR, 2011; Development of University-Industry Partnership, 2010; Industry-Academia Interface - Perspectives And Practices, 2008; Making Academia-Industry Inferface Works, 2005), interviews with industry representatives and consultations with the experts from CHED.

Results and Discussions

Nature of Academe-Industry Partnership

The university-industry partnership has slowly engulfed the academic world in order to raise the graduates' awareness of the real life like situation so as to direct their interest in assisting the industry in

improving products and services. In the Philippines, the system of university-industry partnership was introduced by the Department of Science and Technology (DOST) about three decades ago.

In strengthening the university or academe's quality of education, as prescribed by the CHED (CMO, 2011) and other accreditation agencies, the external linkages or relationships of the institution should be established. Data collected showed that 91% of the HEIs in NCR are engaged in AIP while 9% are not. In many nations, the substantial increase and development in AIP in recent years has set a trend (Theotoky, Beath, & Siegel, 2001). Such growth can be attributed to several key changes in technology policy. In the Philippines, the growth of academe-industry partnership was due to the desire to address the issue of "mismatching" (Navarro, 2001; Partner 2006). No less than the report of the World Intellectual Property Organization (WIPO, 2005) confirmed that the collaboration between university and industry is not yet widespread in the country so that very small proportion of universities has strong R&D units that enable U-I collaboration.

Table 1 *AIP Involvement of HEIs*

Involved	76	90.5
Not Involved	8	9.5
Total	84	100.0

Many academic institutions in the Philippines, particularly in the tertiary level, are engaged in various collaborations with different industry-partners. The practice of partnership, however, was limited to some areas like on-the-job trainings, graduate placement, and curriculum design. The situation has not changed in the last ten years (Villegas, 2009). Historically, in the Philippines large proportion of AIP lies in the agricultural sector (WIPO, 2005).

Table 2 *Areas of Partnership*

Areas of Partnership	Weighted Mean	Verbal Interpretation
1. The University is involved in giving certification/accreditation to the industry's products and services	1.90	Limited
2. It is involved in providing consultancies to the industry	2.21	Limited
3. It regularly consults the industry on its curriculum design	3.00	Adequate
4. It provides executive education program to industry executives and personnel	2.18	Limited
5. It is involved in extension projects with the industry	2.60	Adequate
6. It is involved in income generation projects with the industry	1.92	Limited
7. It has an internship/on the job training program with the industry	3.94	Moderately Extensive
8. It is involved in job placement program of students and graduates in various industries	3.45	Adequate
9. It has in joint research projects with the industry	2.04	Limited
10. It is involved in scholarship program for Faculty from the industry	1.99	Limited

Because HEIs offer various academic programs and specialize in certain areas or fields of discipline, it is understandable that the academe's engagement in partnerships revolves on their academic program offerings. HEIs partnership engagements are concentrated

mostly in business, Information and Communication Technology (ICT), education, medical health sciences and others, as reported in the studies of Nieva and Doma (2006) and Medado (2008). The Philippines scenario resembles those in China, Japan, Korea, and Singapore where most of their AIP collaborations are in the same disciplines, particularly science and technology and profit seeking business (WIPO, 2005).

Table 3 *Fields of Discipline where HEIs are mostly involved in AIP*

Arts	24	28.6
Social Sciences	30	35.7
Education	42	50.0
Business	56	66.7
Engineering	24	28.6
Information and Communication Technology	49	58.3
Natural and Physical Sciences (Biology, Ecology, Chemistry, Physics)	25	29.8
Medical/Health Sciences	36	42.9
Agricultural Sciences	8	9.5
Marine Sciences	3	3.6
Others	13	15.5

Table 4 *Factors influencing AIP*

Factors of Partnership	Weighted Mean	Verbal Interpretation
1. Academe-Industry Matching	3.38	Moderate
2. Academic Requirement of the Program	3.65	High

3. Accreditation Requirement of the Program	3.05	Moderate
4. Financial Support from the Industry	2.26	Low
5. Good Image Building of the University	3.31	Moderate
6. Human Resource Capability Building of the University Personnel	2.99	Moderate
7. Income Generation of the University	2.49	Low
8. Institutional Capability Building of the University	3.06	Moderate
9. Establish Linkages and Consortia with the Industry	3.26	Moderate
10. Student Immersion	3.88	High
GRAND WEIGHTED MEAN	3.11	Moderate

Carayannis (2000), Yucel (1997), Betts, (2002) and Mattesich (2002) enumerated various reasons for the universities engaging in partnerships with industry. Some of these reasons include sharing of risk and cost for long-term research, access to complementary capabilities, access to specialized skills, access to new suppliers and markets, self-development of academic personnel, publication of the results of research and creative works, developing new technologies and many others. Universities which offer theory-based education are often faced with budget constraints that limit their ability to acquire hands-on trainings for their students. To meet this challenge, universities engage in academe-industry partnerships to heighten their quality of education (Kumar, Horton, Munro, & Sargent, 2002). Partner-industries provide trainings for the graduates and the students, to help the company acquire valuable sources of knowledge

and highly trained employees (Betts, 2002). In the Philippines, the HEIs AIP engagement is highly influenced by student immersion as one of the requirements in the academic program (CHED, 2011). There are other factors that moderately influence HEIs to engage in partnership with industry such as academe-industry matching, accreditation, good image building, human resource and institutional capability, and establishment of strong linkages and consortia.

Table 5 *Types of Partnership*

Mostly Formal (with MOU/MOA)	46	60.5
Mostly Informal (no formal/written agreement)	6	7.9
Both Formal and Informal	24	31.6
Total	76	100

A big majority of the HEIs had mostly formal type of partnership, with a legally binding agreement where the parties involved concur to share liabilities and responsibilities (Smith and Rees, 2002).The agreement is concretized in a contract of memorandum of agreement or memorandum of understanding, a written contract indicating what the two sides agree upon. The academe and the industry recognize the importance of having such terms of reference to protect the interests of the parties involved. In contrast, a number of HEIs also involved in informal partnership, a type of collaboration based upon a shared vision, concern, or need that interests two or more parties, but does not have a written agreement defining the goals, roles, and responsibilities of each party. It can be done verbally or just in form an agreement without signing any legal paper or contract. This kind of

partnership is usually between two agreeing parties, done without official proofs.

In practicing collaboration, it is imperative to ensure a sufficient level of trust so as to reduce uncertainty. Thus, formalizing interaction is critically important for two main reasons or functions: to commit human resources to objectives and views, and to avoid problems by choosing formal arrangements that correspond to needs of the partners involved, held Schartinger (2002). For his part Murad (2008) averred that an industry and a university are engaged in a partnership to establish harmonious relationship and open valuable opportunities, whether the collaboration is formal or informal.

Table 6 *Mode of Partnership*

Mostly one-time partnership project	10	13.2
Mostly project based	13	17.1
Mostly continuing project	51	67.1
Others	2	2.6
Total	76	100

Most number of HEIs practiced continuing partnerships, crucial to attaining long-term objectives between the academe and industry. Both parties recognize the value of having an ongoing partnership in realizing set goals of the program or projects undertaken by them. Effective partnership depends on certain issues, such as the academe's understanding of the needs of the industry and its ability to respond to them (Massaquio, 2008). Thus, understanding of such needs would be attained, if there was a continuing partnership between the university and the industry. Furthermore, Elmuti (2005) affirmed that if several challenges towards academe-industry partnership were addressed like

lack of trust, communication, different long-term objectives and conflict of interest when the university and industry engaged in continuing partnership, understandings could be developed.

Table 7 *Timeframe of Partnership*

Mostly short-term (1-6 months)	13	17.1
Mostly mid-term (6 months to 1 year)	27	35.5
Mostly long-term (more than a year)	32	42.1
Others	4	5.3
Total	76	100

HEIs engagements in AIP were not only continuing, but, at the same time, in long-term partnerships. As aptly explained by Dautriaux and Barker (2005), various forms of university-collaboration such as training and teaching, research, exchange of knowledge and technology transfer require long-term engagements between and among parties involved. In the Philippines, the traditional type of linkages predominant among universities is student internship, a linkage mechanism that requires long-term and continuing engagement. In this regard CHED (CMO, 2011) ordered the HEIs to come up with their creative and long-term academe-industry linkage plan appropriate to degree programs. Since 1994 various efforts regarding academe-industry partnership in the Philippines have been initiated. Some proved successful; others flopped due to of lack of long-term and continuing program of partnership between the universities and the industry (Navarro, 2000).

Table 8 *Source of Funds for AIP*

Mostly funded by own institution	40	52.6
Mostly funded by the partner industries (local or foreign)	12	15.8
Mostly funded by the government agencies	5	6.6
Mostly from the collaborative funding among HEI, Industry and Government Agency	18	23.7
Others	1	1.3
Total	76	100

Faced with decreasing budgets and workforce reductions, organizations are challenged to be innovative in funding their projects. This is an important factor in establishing successful partnership/collaborative projects. Most of the partnership projects between HEIs and industry partners were solely funded by academic institutions themselves.

Although a number of industry partners provide financial support for the partnership projects, it is considerably few and limited. Generally, Asian universities depended on a variety of funding mechanisms for university-industry collaborations (WIPO, 2005). However, in the Philippines, the limited funds were traceable to the strong presence of foreign businesses among potential partners for university collaboration which tended to rely on R&D and technologies on their parent companies. These risks complicate university-industry relations and thus make budget support more difficult.

Fund support for academe-industry partnership depends on the type of academic institution. For instance, in public higher education institutions, funds for their projects largely come from the government budget; however, because of meager budget allocated to the government

universities and colleges, the latter depend on the private sector for additional funding especially on research and linkages activities. By contrast, the private universities can easily look for funding support from the private sector due to their flexible policies and structures, unlike in the public educational sector where government policies on auditing and liquidation of funds must be properly observed.

Sharing of funds, though, can be mutually arranged between the academe and the industry. Collaborative funding helps produce quality and extensive projects for the development of both the universities and industry (Howells, 2008).

Table 9 *AIP Mechanism*

Partnership Mechanism	Weighted Mean	Verbal Interpretation
1. Personal Contact of the Faculty and Officials of the University	3.65	High
2. Through the Government Agency	2.77	Moderate
3. Through the Alumni	2.94	Moderate
4. Through the Local Government Units (LGUs)	2.71	Moderate
5. Through the Non Government Organizations (NGOs)	2.70	Moderate
6. Through the Research Unit	2.48	Low
7. Through the Training Center	2.46	Low
8. Through Research Institutes and Consortium	2.34	Low

9. Through Science Parks and Business Incubators	1.82	Low
10. Through other Higher Education Institutions (HEIs)	2.72	Moderate
GRAND WEIGHTED MEAN	2.66	Moderate

The predominant instrument that paves the way for AIP projects and activities among HEIs is the personal contact of the faculty and officials of the universities. Thus, institutional policies and external linkages between and among academic institutions, industries and government must be strengthened. As recommended by Edralin (2001), colleges and universities should strengthen their linkages with their various stakeholders: a) Industry, b) Alumni, c) Other Schools and d) Government. The problem in partnership mechanism in HEIs results from the university's lack of administrative and organizational set-up for ably managing the partnership. Also, the bureaucratic requirements and processes being practiced in HEIs, especially the public institutions, compound the problem.

Benefits of Academe-Industry Partnership

The relationship between the academe and the industry will always be a complex one, fusing a culture with a tradition of knowledge for knowledge's sake and with an environment that stresses increased financial returns (Henderson & Smith, 2002). After all, academe-industry partnership has existed and developed way back in history. Different countries all over the world utilize this partnership to meet certain goals that benefit both parties (Challeni, 2006; Martin 2000).

Table 10 *Benefits Gained in AIP*

Benefits Gained	Weighted Mean	Verbal Interpretation
1. Certification/Accreditation from the Industry	2.53	Low
2. Consultancy	2.67	Moderate
3. Curriculum Design	3.05	Moderate
4. Equipment Donation	2.37	Low
5. Executive Education Program	2.30	Low
6. Extension Projects	2.81	Moderate
7. Financial Grants	2.10	Low
8. Good Image Building	3.30	Moderate
9. Infrastructure Development	2.17	Low
10. Internship/On the Job Training	3.83	High
11. Job Placement of Students and Graduates	3.55	High
12. Joint Research Program	2.22	Low
13. Joint Research Projects	2.12	Low
14. Publication	2.10	Low
15. Revenues for Income Generation Projects	1.96	Low
16. Scholarship for Faculty	1.98	Low
17. Scholarship for Students	2.56	Moderate
18. Sharing of Expertise	2.71	Moderate
19. Technology Transfer and Utilization	2.39	Low
20. Training of Faculty and Personnel	2.62	Moderate
GRAND WEIGHTED MEAN	2.58	Moderate

University-industry partnerships take many forms (Dautriaux and Barker, 2005): a training, teaching, research, exchange of knowledge, and technology transfer. Both the academe and industry benefit from these engagements. In the Philippines, AIP situation in the last ten years has not changed (Villegas, 2009). The primary benefits gained by HEIs from industry partnership are mostly limited to the establishment of linkages for internship or the student's on-the-job training that led to job placements of their graduates. In other areas of engagement, however, the benefits are either moderate or low. Jones (2002), Jachimowicz and Umali (2000), and Elmuti, (2005) clearly cited benefits gained by universities and industry engaged in academe-industry collaboration described as a win-win type of relationship. Salter, Brunee, and D'Este (2009) reported that partnership is made to help two parties to identify and cater to each other's needs toward development and mutual benefits. As expressed by Echavez (2007), when the industries help the students become professionals, it redounds to the progress of the university, the industry, and the entire country's economy as well.

By and large, many benefits-social, university, and company (Arromin, 1996; Jone, 2006; Mousa, 2006; Casqueo, 2009), can be gained from good university-industry partnership. As Elmuti (2005) rightly mentioned "from the industry, the university can get training for its students and academics; industry practice knowledge going back to universities; and research platform and findings shared and beneficial to both industry and university". Such benefits may not encompass the HEIs in the Philippines; thus, developing partnership that are mutually beneficial to both parties is really important to be developed and encouraged.

Problems Encountered by HEIs in AIP

Effective partnership requires efforts exerted by both the academe and the industry to fulfill each other's needs. In line with this goal, impediments inevitably lie on the path for the academe-industry linkages or collaborations to hurdle.

Table 11 *Problem Encountered by HEIs*

Problems Encountered	Weighted Mean	Verbal Interpretation
1. The University lacks or has limited fund to support the partnership projects.	2.96	Somewhat Encountered
2. The academe-industry partnership program in the University is limited to a particular discipline.	3.10	Somewhat Encountered
3. The University lacks awareness on potential partnership projects from the industry.	2.58	Somewhat Encountered
4. It lacks administrative and organizational set-up for the management of the partnership.	2.49	Less Encountered
5. It lacks institutional policies (like Intellectual Policy Right) to support and protect the partnership projects and output.	2.29	Less Encountered

6. It lacks or has limited personnel to work on the partnership projects	2.96	Somewhat Encountered
7. It lacks dedicated people to manage and lead the partnership projects	2.64	Somewhat Encountered
8. It lacks incentives for faculty, researchers and other personnel who are working on the partnership projects.	2.89	Somewhat Encountered
9. It lacks proper coordination with the industry for their partnership projects.	2.49	Less Encountered
10. It lacks interest in partnership with the industry.	2.04	Less Encountered
11. There is limited time to accomplish/finish the partnership projects.	2.53	Somewhat Encountered
12. The University lacks mechanism to operationalize the partnership.	2.43	Less Encountered
13. It lacks pool of experts to work on the partnership.	2.42	Less Encountered
14. It has limited involvement on partnership projects with the industry.	2.58	Somewhat Encountered

15. The University has limited technical know-how on the processes involved in partnership.	2.41	Less Encountered
GRAND WEIGHTED MEAN	2.57	Somewhat Encountered

Collaboration between industry and universities poses significant problems, given the fact that these organizations are driven by different management, organizational and incentive systems (Tansinsin, 2005). The problems encountered by HEIs on their AIP engagement primarily center on the organizational, administrative and management aspects of AIP, such as the lack or limited personnel to work on partnership project and paucity of funds to support the AIP. HEIs also encountered lack of coordination, limited time constraint and involvement of people to accomplish the project. Notably, the engagement of universities on their AIP is mainly based on a specific areas and discipline which is usually the flagship program of the institution, thus the problem of AIP with the university being limited to a particular discipline is likely to be encountered.

In the HEI-industry survey, the divergence of objectives between partners was one of the primary problems in maintaining relationships with the industry, followed by absence of professional approach by HEIs (Howells et al., 2008). According to the International Labor Organization (International Institute for Education Planning, 2011), this divergence of objectives between the HEI and industry during the project is most often caused by changes in priorities on the industrial side, as sometimes driven by changes in management or ownership.

The lack of professional approach in maintaining the collaboration was manifested in various ways, most commonly in terms of adherence to deadlines; deficiencies in response time caused by HEI procedures, reporting deficiencies, and contracts (Howells et al., 2008). Other problems identified by IIEP included misunderstanding or insufficient grasp of the aims and other priorities for academicians, that focused mainly on the competing demands for staff time from other research and teaching activities. In general these barriers usually pertained to institutional differences and deficiency concepts of planning.

Aside from the IEEP identified problems shown in the response of the HEIs, Elmuti (2005) enumerated some challenges universities met in implementing AIP projects. These challenges could become barriers or constraints, let alone pose problems in the partnership. Among them are: mistrust, lack of communication, different long-term objectives, conflict of interest. Despite the fact that the principle of academia-industry partnership has been adopted by many institutions, both private and public, in the past decade or more, its full potential has been far from being fully utilized due to the stakeholders' basic attitudinal differences and driven interests, thereby making the partnership problematic.

Conclusions and Recommendations

The higher education institutions in the Philippines are greatly involved in formal, mostly continuing and long-term academe-industry partnership in the fields of business, ICT, education, and medical/health science. However, the HEIs mostly shoulder the funding for such partnership. The nature of academe-industry involvement of HEIs is a positive indicator that partnership among HEIs in the region can be strengthened, no matter how the benefits of AIP are limited to areas of establishment of linkages for internship or the students on-the-job

training that led to job placements of their graduates. More pointedly, the problems encountered by HEIs on their AIP engagement primarily center on the organizational, administrative, and management aspects of AIP.

Based on the study's findings, the following are recommended for possible implementation:

For Higher Education Institutions (HEIs)

Admittedly, the academe-industry partnership involvement of higher education institutions in the Philippines is limited. Thus, HEIs should work to strengthen their partnership involvement by various institutional reforms including policy, structure, and capability building that will pave the way to better academe-industry partnership. Expansion of the areas of involvement is encouraged to implement, instead of limiting it to student internship/on-the-job training and job placement of the graduates. That other areas of involvement be explored such as research, sharing of expertise, technology transfer, publication, and other areas where institutional capabilities can be tapped. Equally, the HEIs are advised to look for other involvement mechanisms and not limit partnership to personal contacts of faculty and university officials. Other means to collaborate with industry should be established by tapping the help of successful alumni, government agencies, local government units, non-governmental organizations, and other higher education institutions. Once the academe-industry involvement is strengthened, the benefits of such partnership will be felt by the institutions and problems encountered lessened and addressed easily. Lastly, the following specific recommendations are hereby given:

1. *Build more understanding and awareness on the role and importance of academe-industry partnership among administration of the institutions, faculty, and students*

The notion of academe-industry-government linkages must be incorporated into the mission of the Higher Education Institutions. Institutionalize change by encouraging HEIs to include partnership goals in their own institutional mandates and by earmarking funds to carry out partnership activities.

2. *Have commitment and vision*

Commitment and vision, the most essential factors that determine the success of implementing academe-industry partnership, must prevail in HEIs. Higher Education Institutions need to develop a long-term vision of their relations with industry. This means that they have to go beyond the concept of "relations" and "partnership" to the notion of positive "cooperation". The latter has to do with mental and attitudinal change, the sharing of values and mutual learning between partners.

3. *Promote and facilitate partnership*

The strong academe-industry partnership can be facilitated through effective management. This can be done by institutional reforms including policy formulation, structural and capability building not only of the institutions but also by the people involved in the partnership. Also, the capabilities and expertise of the institutions must be disseminated to attract possible partners and collaborators.

4. *Improve the flow of communications and connectedness*

In addition to simply facilitating general communications and exchange of information, an interdisciplinary consortium of faculty, researchers, and technologists from the different universities must be established in order to pool the different expertise to accelerate collaborative partnership among HEIs enough to contribute considerably to broadening the range of many cooperation initiatives in all areas.

For the CHED

The Commission as the highest policy-making body of all higher education institutions in the country must lead the education sector in fostering strong academe-industry partnership by establishing national or regional policy framework that will pave the way for collaborative academe-industry partnership among higher education institutions. It should clearly articulate the commitment of the agency to academe-industry partnership and provide incentives or awards for HEIs that will establish exemplary partnership program with the industry. Though this strategy is being done by CHED for exemplary research and extension programs, it is suggested that such strategy be expanded to academe-industry partnership.

For the Industry

International foreign firms generally lack confidence working with the local laboratories and universities in the country and rely more on the services of their foreign counterparts and universities abroad in perceiving that higher education institutions in the country find and make it more difficult to enter partnership with foreign companies. Thus, it is recommended that various industries, both foreign and local, had mutual trust and confidence in the capabilities and expertise of HEIs in the

country in providing services. Universities will be motivated to enter into partnership with the industry so that mutual benefits can be gained. The notion of academe-industry linkages must be incorporated into the mission of the industries. Also there is a felt need to revolutionize corporate mission of the industries to include partnership goals and commitment to their own corporate philosophy and social responsibility. More importantly, they have to earmark funds to carry out partnership activities, vision for and commitment to for long-term partnership with the academe. In the long run, both will prevail for their mutual advantage.

If followed appropriately, these recommendations can contribute to a strong academe-industry partnership among the universities and industries in the National Capital Region and in the whole country.

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