

A Growth Model For International Education In Developing Countries

Hoang T. Nguyen

University of Social Science and Humanities,
Vietnam National University of Ho Chi Minh City, Vietnam nguyenth@msm.nl

Ma'ruf

Andalas University, Indonesia maruf@msm.nl

Jol Stoffers

Zuyd University, Netherlands jol.stoffers@zuyd.nl

Abstract

This papers objective is to build a collaboration framework to marshal the international cooperation among universities, not only within the same region in developing countries but also with developed countries. The research is based on selected case studies, which consists of top universities in Vietnam, Indonesia, Australia, the Netherlands, and the worldwide universities network. The suggested framework involves two core activities, which are teaching and learning, and research. These are influenced by required resources, policy, and accreditation. The key for successful collaboration lies in the relations between these elements; therefore, the collaboration will not necessarily follow a continuum.

Keywords: collaboration in higher education, university

1. Introduction

All countries in the world need human resources to create products and innovation in order to stimulate and give impulses to national development. Such human capital, either manual workers or professional experts, has to be composed of a skilled and educated workforce (employability). Nevertheless, due to a possible limitation of inner resources, not all countries can provide workers of the desired quality to meet rapid economic growth and social demands.

A question that can be posed is, whether a country can build up domestic human resource by opening its borders to resources from abroad. This idea leads to the concept of collaboration. Actually, collaboration can bring a lot of benefits to partners such as promoting opportunity for people to gain experience in understanding, belief, recognition, diversity, and knowledge (Frey, Lohmeier, Lee, & Tollefson, 2006), efficiently allocating scarce resources (Thomson, Perry, & Miller, 2009), im-

proving efficiency, customer services, system, reduction in expenses (Biscoe, 2009). That is the reason many researchers have studied collaboration in terms of teaching and learning (McIlrath & Huitt, 1995), collaborative learning (Johnson, Johnson, & Stanne, 2000), collaborative, inter-actionist model of teacher change (Kaasila & Lauriala, 2009), Internet-based educational modules (Snyder, Meyer, McGivney, & Smith, 2010), safe schools through strategic alliances (Gajda, 2006).

Surprisingly, there is not enough research about collaboration among universities despite the existence of many collaboration programs in practice. To what extent does it construct the collaborative institutional education? We take this challenge as part of the research by exploring the elements involved in the collaborative institutional framework.

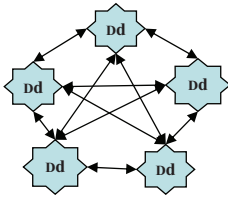


Figure 1: network among "well-ranking" universities



Figure 2: cooperation between universities in developed (Dd) and developing (Dg) countries.

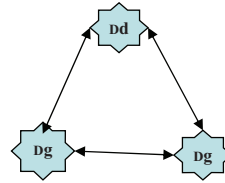


Figure 3: Model of Dg – Dg – Dd institutional collaboration

Figure 1 and 2 demonstrate the most common collaboration program. Figure 1 illustrates the network among selected well-known universities in either the world or the same region. Most of those universities are located in developed countries (Dd). The worldwide universities network and MidWest Universities (USA) are some valuable examples.

Figure 2 shows the relationship between universities in developed (Dd) and developing (Dg) countries. These are illustrated in two separate concepts. The first concept comes from universities in developing countries (e.g. Gadjah Mada University, Indonesia), which illustrates the cooperation with universities in developed countries (e.g. Queensland University, Australia) in terms of double degree, for instance. The second concept comes from universities in developed countries (e.g. Maastricht School of Management), which involves engaging in an outreach program in universities in developing countries (e.g. University of Technology of Ho Chi Minh City, Vietnam), for example. The relationship is not an interaction (one way arrow).

Figure 3 represents the researchs purpose that is to make the mutual collaboration among universities in developing countries, and developing countries, and developed countries. By scrutinizing the case studies of universities in both developing and developed countries, we generalize the practical occurrence to be a theoretical framework for the collaborative institutional education. The selected cases are in Vietnam, Indonesia, Australia, the Netherlands, and the worldwide universities network (WUN). The model not only contributes to the theory of inter-institutional collaboration, but also acts as a guideline for empirical researches and practical applicability.

The framework focuses on enhancing the cooperation and development between universities in developing countries, especially in the same region (e.g. ASEAN, Sub-Sahara, and Latin America). Furthermore, the model encourages institutions in improving organizational capability, supporting economically disadvantage students to have international experience and network for their future career.

The paper is structured as follows: Section 2 reviews the theory of collaboration; Section 3 scrutinizes case studies; Section 4 argues the collaborative institutional education framework; Section 5 provides the conclusion.

2. The theory of collaboration

2.1. Definition of collaboration

Collaboration has a variety of definitions depending on each specific concern. According to (B. Gray, 1989; B. Gray & Wood, 1991), collaboration is a process of sharing different resources to find out solutions of problems. The author defines that collaboration is

a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible (B. Gray, 1989)(p.4).

Additionally, collaboration is

the pooling of appreciations and/or tangible resources, e.g., information, money, labour, etc., by two or more stakeholders to solve a set of problems which cannot be solved individually (J. A. Gray, 1995) (p.912).

Sharing the same ideas, Biscoe (2009) states that collaboration is the creation of something new and different that did not exist before. Partners spend efforts to solve common problems, settle conflicts, and share goals. For Biscoe, collaboration is not only for solving common problems but also for sharing interest and goals. This idea is supported by Frey et al., (2006). For them, collaboration involves *two or more individuals working toward a desired outcome*. Similarly, Chrislip and Larson (1994) describe collaboration as *a mutually beneficial relationship between two or more parties who work toward common goals by sharing responsibility, authority, and accountability for achieving results* (Cross, Dickmann, Newman-Gonchar, & Fagan, 2009)(p.313). In this definition, the authors emphasize the issue of mutual beneficial relationship of parties in collaboration. Likewise, Mattessich, Murray-Close, and Monsey (2001) regards collaboration as a mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals. Bhandar (2008) demonstrates the collaborative projects which emphasize mutual benefits between partners.

Thomson et al., (2009) provides a comprehensive definition of collaboration, which is composed of five key dimensions of governance, administration, mutuality, norms, and organizational autonomy. The author states that

Collaboration is a process in which autonomous or semi-autonomous actors interact through formal and informal negotiation, jointly creating rules and structures governing their relationships and ways to act or decide on the issues that brought them together; it is a process involving shared norms and mutually beneficial interactions (p.25).

We will further discuss the definition of collaborative institutional education in the discussion section.

2.2. Collaboration degrees

Generally, collaboration is a concept of working together among either individuals, or entities, or individuals and entities. Most researchers realize that collaboration is the process of a sequence of interaction (e.g. Peterson, 1991, Hogue, 1995, and Cross and, 2009). According to Peterson (1991), there is a three-point continuum of interaction. The first one is cooperation. At this stage, the link between partners is loose: partners just share information to support each other. The second stage is coordination: partners, who are still independent, make parallel activities to get mutual benefits. The third one is collaboration in which the tie among partners is quite fastened. Partners work together in order to achieve shared goals.

A little bit different, Chrislip and Larson (1994) argue that the degree of relationship is surrounded by networking, coordinating, and cooperating; and distinguished by varying levels of accountability, authority, and shared responsibility. Peterson's model has attracted researchers attention. Based on this framework, the Cooperative State Research, Education, and Extension Service (CSREES) and USDA, (Hogue et al., 1995) propose a community linkages - choices and decisions matrix. The matrix is defined by five different levels of (1) Networking, (2) Cooperation or Alliance, (3) Coordination or Partnership, (4) Coalition, and (5) Collaboration.

Each level is determined by different dimensions of purpose of relationships, roles of participating partners, and processes of interaction. For instance, in the simplest step of networking, the purpose is just to exchange information, and create a base of support while it is to accomplish shared vision and impact benchmarks, and build an interdependent system to address issues and opportunities in the highest step of collaboration. The structure is quite similar between the step of coordination and coalition as the roles of partners are defined and resources and budget are developed.

However, the latter is in higher degree as it links formal with written agreement. The process of making decisions in which leadership facilitates cooperation must be based on a trust level, high leadership and productivity in collaboration. Cross et al., (2009) support this model by using it as a foundation to suggest a mixed-method to examine the changes in interagency collaboration. By combining both Peter and Hogue's models, Bailey and Koney (2000) suggest a model with four steps of cooperation, coordination, collaboration, and coadunation. According to the authors, coadunation is the highest level of interagency relationships, which means having grown together. This step implies that at least one agency has completely relinquished their autonomy in order to strengthen a surviving organization (Gajda, 2006).

As a sequence, Gajda (2004) adapts Bailey and Koneys model to state that collaboration is a journey not a destination. In this framework, each level is characterized by shared information and mutual support (cooperation), common tasks and compatible goals (coordination), integrated strategies and collective purpose (collaboration), and unified structure and combined cultures (coadunation).

Later, Gajda (2006) suggests a Strategic Alliance Formative Assessment Rubric (SAFAR), which consists of five ordered steps of networking, cooperation, partner, merging, and unifying. Each step differs from the other by the dimensions of purpose, strategies and tasks, leadership and decision making and interpersonal and communication. Meanwhile, Frey et al., (2006) extend Hogue et al., and Bailey and Koneys models in one more steps: Coexistence stands before network stage. The authors argue that there is a possibility of the existence of no collaboration whatsoever between partners; therefore, coexistence could be the lowest level in the collaborative scale.

In summary, the most accepted collaborative scale includes five continuum stages that are network, cooperation, coordination, coalition, and collaboration. Each step is identified by purpose, organizational structure/ required resources, and process of making decision/ legislation, policy, and trust (see Table A.1 in appendix).

3. Case Study

Based on collaborative scales the above literature this paper aimed at exploring the current collaboration among universities in order to build the model for collaborative institutional education. Five cases of universities are selected to collect information as follows.

3.1. *Ho Chi Minh City University of Technology (HCMUT), Vietnam*

Ho Chi Minh City University of Technology (HCMUT) is the leading university in teaching and research activities of Vietnam. It has the number one ranking in Vietnam and ranks forty among 100 top universities in South East Asia region. HCMUT is mono-discipline, which has the function of training engineers in the fields of basic construction, industry, natural resource management, and environmental protection; serving the Southern parts of the country. HCMUT owns 11 faculties, 11 research centres, 3 training centres, 46 departments, 9 workshops, 41 labs, 8 computer rooms, 1 company, and 1 publishing house.

Concerning the international collaboration in higher education, HCMUT has links with more than 70 universities and academic research institutes. The collaborative programs are mainly based on teaching and learning activity and research and development (R&D). In regard to teaching and learning activity, HCMUT and partner universities cooperate in training bachelor, master, and doctorate degrees. Vietnamese students sit in HCMUT for the first half period, and go abroad for the remaining period. The two partners are independent in teaching curriculum and resources. The certificate is issued by either university partner or twin (bachelor only).

According to the collaboration scale, such links are in cooperation step. However, there are two exceptions. The first one is the Excellent Engineers Education Program (Programme de Formation d'Ingénieurs d'Excellence au Vietnam - PFIEV). The program, which is supported by the Vietnamese and French government, involves four Vietnamese and eight French universities. The curriculum in Vietnamese universities is benchmarked to French undergraduate curriculum. Students study basic subjects in the first three years; then follow specific subjects of their choice.

After 5 years, students get double degrees at a bachelor and master level that are issued by the Vietnamese university (e.g. HCMUT) and French university (e.g. École Centrale Paris), respectively. The second case is the Master of Business and Information Technology program in collaboration with Middlesex University (UK).

In this program, students can take courses either in part-time (at HCMUT) or full-time (at both HCMUT and Middlesex). While studying at HCMUT, students can access open courseware (OCW), and directly follow the lecture in Middlesex through internet. For these two cooperative forms, the relationship reaches collaboration level since partners work and share resources and responsibility together. In the aspect of R&D, HCMUT has expanded some forms of coordination and coalition, such as academic training, co-supervision to doctoral candidates and joint research. Among those varieties, HCMUT also gives students information about scholarship in some universities in the world. This is an example of the simplest relationship, networking.

In summary, although HCMUT has delivered all parts of the collaboration scale; however, most of them are in cooperative level, and in one way. HCMUT sends students abroad (outbound) while receiving just some practicing students from France, Australia, Norway, Belgium or international students to attend one or two terms (inbound). It makes HCMUT still appear as a domestic university. In addition, most cooperation agreements have been made with universities in developed countries (95.56%). There are only some links with Thailand, Philippines, Taiwan province of China, and China. These resources show a great potential for collaboration. Surprisingly, HCMUT does not have any international accreditation.

3.2. *The Gadjah Mada University, Indonesia*

Located in Yogyakarta province, central part of Java Island, The University of Gadjah Mada (UGM) was founded on December 9, 1949. It currently has 18 faculties, 71 undergraduate study programs, 28 diploma study programs and a Graduate Program of 62 study programs with around 55,000 students, 350 foreign students, 2,301 employees, and 2,266 lecturers. Its strategic planning documentation (2008-2012), includes a mission to be a world class research university.

UGM is striving to enhance international academic reputation and accreditation in teaching and learning process, research and community service as well as improving the international cooperation network. It is actively increasing joint programs with qualified overseas universities through exchange, dual degree and sandwich program. Until 2009, UGM has received inbound and sent outbound, students from and to more than 130 partner universities all over the world.

However, most of the figures are based on inbound students attending in order to earn credit, spread over all faculties and relatively fewer UGMs students that are involved in outbound exchange programs and credit earning programs, which take place especially in developed countries. Figures from the office of international affairs show that about 65 percent of the partner universities are from developed countries in Western Europe, North America and Japan. The remaining 35 percent of the partners mainly come from south East Asian countries.

UGM currently has a dual degree program with Georgia State University, USA, University of Groningen of the Netherlands and University of Melbourne, Australia to mention only a few. It also has a sandwich program for the doctoral level, for example, in collaboration with the University of Twente in the Netherlands. In sandwich program, doctoral students have the opportunity to conduct part of their research program at partner universities. Some of the benefits for UGM and the students is access to better quality of resources in developed countries such as modern laboratory facilities, huge range of supporting material and qualified academic expertise.

The sandwich program is made possible by agreement between two universities. Each university at least has to standardize some aspects of the academic and infrastructural conditions. In addition to the collaboration with another university, UGM also established collaboration with non-university organizations such as USAID for funding and technical assistance. To be a world-class research university UGM pursues collaborative research with partners in developed nations. Some of the collaborations that exist are with organizations like the University of California, FAO, URGE Project, Germany, Caltex Pacific Indonesia and Hitachi Foundation and Tokyo University of Agricultural and Technology, Japan. Additionally, UGM has worked with The Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) Germany and WHO in the field of international cooperation for sustainable development and community service.

UGM is continuously improving its international cooperation network by joining the NIBES. NIBES stands for the Network of International Business and Economic School (NIBES) founded in May 1996 at Tours, France. It has 23 members of business schools from all over the world. It also gained some international accreditation such as AACSB for Business School. UGM strategic plan documentation has shown commitment to build and enhance international collaboration. This collaboration covers three main areas: teaching and learning, research and community service. Despite significant accomplishments in international collaboration, this should be enhanced to a higher level. For example, most of the partner institutions or about 65 percent are from developed countries. Meanwhile, 35 percent of other institutions come from the southern part of the world. Therefore, opportunity to enhance collaboration on this area is still available because it may provide comparative advantage in terms of proximity and other similarities.

3.3. *The University of Queensland, Australia*

The University of Queensland (UQ) was founded in 1910 as the first university in Queensland and the fifth in Australia. It is now known internationally as a leader

among Australia's 41 universities. The University ranks in among the top fifty universities of the world. UQ performance in international collaboration is shown by its existence as one of only three Australian founding members of Universitas 21, an international consortium dedicated to world's best practice. UQ has the strategic priorities in teaching and research, in the development, management and diversification of its resource base and in the use of new technologies to provide leading-edge infrastructure.

UQ commitment to deliver an internationally focused teaching and learning experience is conducted through curriculum and through exposure of students to educational and cultural experiences within the university and overseas. It develops strategies to support the internationalization of programs and courses, including the offering of at least one program per faculty requiring a component of offshore study in collaboration with overseas university partners. It seeks opportunities for enhanced collaboration and strategic partnerships in teaching and learning with other institutions in Australia and overseas. At the end of 2009, UQ had 324 international partners in 50 countries with 547 signed and active agreements. There were 73 new agreements signed in 2009, forming official linkages with 41 new partners. Figures in UQ's annual report 2009 revealed that currently 21.7 percent of its student body consists of international students representing 128 countries.

In 2009 UQ welcomed 534 students (mostly from the USA and Germany) as part of the Study Abroad program. Meanwhile the exchange students program involved 326 outbound students and 473 inbound students. This exchange program involves 95 partner institutions in 25 countries. Most students were from the United Kingdom, USA, Canada, France and Mexico. International collaboration with overseas partner is also advanced through establishment of research centre of institute. Currently UQ has seven research institutes that actively build international collaboration with other institutions, ranging from universities, non-governmental organizations and governmental agencies. Some of the collaborative partners are the Chinese Language Council and Tianjin University, Russkiy Mir Foundation, Russia, Carl Zeiss and Tata Institute of Fundamental Research India.

The University of Queensland is one of the best universities in Australia and the world, and it has been involved and is advanced in international collaboration. It has a unique position due to its advancement and location. Australia is proximately closer to Asian countries than Western Europe or North America. Meanwhile, most international collaboration still focuses on partner universities or institutions from northern parts of the world. Therefore, UQ should enhance its collaboration with closer proximity partner such as from South Asian countries.

3.4. *Zuyd University of Applied Sciences, Netherlands*

Zuyd University is a university of applied sciences situated in the Dutch province of Limburg (locations in Heerlen, Maastricht and Sittard), the southernmost part of the Netherlands. This strategic location is at the heart of one of Europe's most essential and prosperous regions, the Meuse-Rhine Euroregion. Brussels and Antwerp (Belgium) and the German Ruhr area are scarcely one hour's drive away and cities such

as Frankfurt and Paris just a few hours. It provides opportunity for work placements at one of the numerous international businesses or exchange programs with partner universities in the Euroregion. Student body comprise of 86% Dutch students and 14 % students from abroad (Germany 9%, Belgium 1,5%, rest of Europe 1,5%, Asia 1%, rest 1%).

With just about 40 bachelor and 10 master programs, 13,955 students and 1,550 staff, Zuyd University is one of the leading universities of applied sciences in the Netherlands. Zuyd University offers the widest range of programs from Bachelors to Masters degrees in the field of: Economics, Languages and Communication, to name only few. Many of the programs have connections with foreign educational institutions.

For example, Zuyd University is a member of HORA EST, a network of universities of applied sciences in the Meuse-Rhine Euroregion. Several schools are members of the Magellan Exchange, a consortium of European and American universities. Since Zuyd University has an international focus, it offers bilingual educational in English, German, and Dutch. It also offers a wide range of study programs in international or exchange programs for incoming students, both for bachelor and master levels. Zuyd University is a significant partner for Euroregional businesses and organizations as far as business courses, applied research, work placements and (graduation) projects are concerned. Through the Universitys Research centres, it strives to disseminate knowledge flows out of the University into the (Euro) region and vice versa.

The collaboration framework is mainly a network among selected well-ranking universities in the world, in developed countries as well as in developing countries. To a limited extent, there is a relation with developing countries. Some universities and institutions that have been involved in collaboration with Zuyd University are Open University Netherlands, Arcus College, Fontys Care, Maastricht University, Universit de Lige, Belgium and the French Grande École Euromed Marseille. Office of Internationalization was also involved in regulating scholarships for students who were training in India and Zambia.

3.5. The Worldwide Universities Network

The Worldwide Universities Network (WUN) was established in 2000, and is an invitation-only, non-profit cluster of universities from Australia, Canada, China, the Netherlands, Norway, South Africa, the United Kingdom, and the United States. The network makes collaboration available between its members, mainly by arranging conventional, online, interactive video-seminars and by financing exchanges of research students and team members. It includes 15 research-intensive organizations in five continents, aiming to be one of the top international Higher Education networks.

The creation of new, multilateral occasions for worldwide collaboration in research and graduate education is one of the most significant tasks. The WUN is a network organization (flexible and dynamic) in an attempt to combine assets and intellectual power of its organizations to realize joint global targets. The added value for the participating universities is that they can broaden their global scope and set

up long-term relationships that can be beneficial for their research and education. The collaboration will lead to joint publications, contributions to international conferences, developing shared modules on master degrees, and coordinated methods to international funding. At this time, the WUN is executing over 30 research programs, and more than 350 research faculties of participating universities are involved in these programs. In addition, the WUN supports postgraduates organizing conferences and virtual seminars accomplishing valuable (virtual) networks, and mentoring in early stage research. The WUN has a central Research Development Fund, supplemented by contributions from the participating universities own international research development programs. Collaborative initiatives and activities can request modest amounts of funding from the Fund.

Each universities shows different performance in each level of collaboration activities. The Most Table 1 reflects the concentration of universities in both developed and developing countries in cooperation, alliance and network level. Meanwhile, the Less expresses that the universities in developing countries do not have many collaborative program in the highest level; contrary, most universities in developed countries operate in that level.

Table 1. Summary of case studies

Collaboration Stage	HCMUT	UGM	UQ	ZU	WUN
Collaboration+ Coalition	Less	none	Most	none	Most
Cooperation+ Alliance	Most	Most	Most	Most	none
Network	Most	Most	Most	Most	none

4. Discussion

Ho Chi Minh City University of Technology (HCMUT) and Gadjah Mada University (UGM) have been involving and striving to improve international collaboration concerning teaching & learning and research & community services. They have shown the commitment through allocation of resources by some action programs for instance establishment of special offices for international affair, assignment of appropriate human resources as well as infrastructure. However, the current fact shows that results of the international collaboration still seem far from ideal. Most international programs are in cooperation step.

In regard to the dual degree, the universities in developing countries mostly send students to partner universities in developed country instead of receiving incoming student (one way). It is feasible approach to utilize external resources (e.g. teaching material and laboratory) and to absorb advanced knowledge. However, it also indicates that the universities in developing countries are shortage of both physical capital such as advanced technology, financial investment in facilities, as well as human capital such as foreign lecturers and English capacity of domestic lecturers.

Meanwhile in the credit earning program, there is higher number of incoming students than outgoing from and to developed countries (as the case of UGM). Ideally, the universities in developing countries should send more students to partner universities in order to provide international experience. However, most of the students from developing countries cannot afford the costs of studying in developed countries. In the interim, students from developed countries seem eager to come due to credit earning which has become an integral part of their curriculum. However, the amount is not many. Once again, it reflects the shortage of required resources in order to provide advanced education. The imbalanced situation also occurred in the research activities and community services. The universities in developing countries are lacking of research capability. It might be a result of either lack of government support or leadership capacity as well as infrastructure. The sandwich program for doctoral degree is one solution for getting access for better infrastructure (e.g., laboratory and material) and human resources.

Most universities in developing countries are facing a similar situation such as inability of students to fulfil the financial requirement to joint exchange programs in developed countries and lack of funding, human resources as well as infrastructure for research. As a result, it is not easy for universities in developing countries to perform two ways collaboration with the partners in developed countries. Furthermore, the lower standard in education in the universities in developing countries is one of obstacles to get international accreditation. They might collaborate with the universities in developed countries in higher stage which deeply shares resources and high responsibilities. In that case, they need support from national governments, even regional association in terms of policy in order to improve internal resources as well as provide guarantee in commitment (as the case of HCMUT).

In the meantime, the universities in developed countries show more powerful position in collaboration with partners in developing countries as they have stronger in resources and reputation. They do not only receive foreign students, but also bring their teaching programs to partner countries by either setting up university branch or operating master/ doctoral programs.

Similarity, in research, the universities in developed countries have possession of better quality of human resources and advance infrastructure. They are a magnet for scholars such as PhD students and researchers. As a result, they are in escalating of more students, more publication, more collaboration, more reputation, and more powerful. These advantages, in company with pursuing internal strategy and supporting from government in terms of education budget make them more benefited and well-situated to perform the highest stage of the collaboration. The subsidies from governments also open chances to their students to enrol in exchange programs or dual degrees abroad.

Additionally, in some specific cases, the strategic location gives the universities more opportunities to do collaborate with neighbour countries and students have more chances to study abroad just in a matter of hours. In some extent, despite the similar effort by the universities in developing and developed countries to enhance the network from the same region, the universities in developed countries seem to be more advanced in terms of collaboration level. However, the universities in developed

countries still need to collaborate with partners in developing countries as they need customers and internationalize their program to other parts of the world.

The current collaboration in education between developed and developing countries is not mutual relationship although both partners get benefits with uncommon goal. Universities in developing countries send students out (one way) to make use of external resources while universities in developed countries receive students (one way) to internationalize the universities. There is resource contribution in some extent but not authority and accountability sharing between partners. It could be understandable because of differences in level of development in required resources and accreditation between developed and developing countries. To fill the gap, the support is requested from policy as well as leaderships perception.

5. Model

Based on the facts from the case studies, this paper is aimed at proposing a model for enhancing international collaboration between universities in developing countries and at the same time to universities in developed countries.

The collaboration among universities in the same level of development is not only to employ external resources but also to improve internal resources, amend legislation and policy, and get better quality in order to meet regional collaborative standard. It is a step in preparing capacity for global collaboration. The regional collaboration also provides students, especially students coming from low income family, benefit in an international environment.

The model shows two ways relationship among universities in developing countries (Dg) and between universities in developing and developed (Dd) countries. This relationship is based on teaching, research & community services, which are influenced by policy, required resources and accreditation (figure 4).

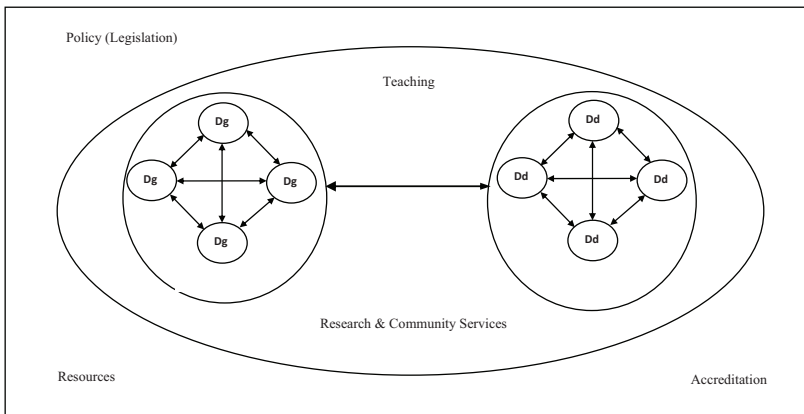


Figure 4. Model of International Collaboration of Higher Education

In general, higher education institutions share similar missions to conduct teaching, research and community services. Although the above literature divides the level

of collaboration starting from networking as the lowest level and goes to collaboration to the highest level; however, a single university might simultaneously start the collaboration at any level with different partner universities or networks. In specific, the lowest level is networking in which the purpose is to build common understanding in loose structure of relationship and involve minimal decision making (Paterson, 1991).

Some activities related to networking such as sharing information about each university and business card exchange in meetings or conferences. The next level is cooperation or alliance where the purpose is to match needs and to manage relationship among partners. The structure of relationship involves specified role of people as a communication hub in semi-formal link. The process involves facilitative leader and complex decision making (Hogue et al., 1995). The case studies have identified that most universities have this cooperation or alliance in the form of dual degree program and joint training/degree program. The next levels of collaboration involve Coordination and coalition. Coordination purposes are to share resources to address common issues and merge resources based on the creation of something new (Biscoe, 2009).

The structure involves organization decision making in specified roles and a formal link. Coordination process is implemented by autonomous leadership (Thomson, 2007). In Coalition, the purposes are to share idea and willingness to allocate resources and develop commitment for a certain minimum period of time. The structure is more complex since all members have a role in decision making (Frey et al., 2006). Link between partners is formalized in written document. The process involves common communication and shared leadership in decision making. There are two similarities between coordination and coalition in term of requirement of the development of new resources and joint budget. Examples of coordination activities are joint organizing of international conference and co-authoring. Meanwhile coalition activities such as joint research projects, co-supervisors, exchange students (both inbound and outbound) assist in learning, practicing, and exchanging lecturers. The fifth level or the highest level is collaboration itself in which the purposes are to have complete shared vision and to build interdependent system among the partners (Gajda, 2004).

The structure requires consensus in shared decision-making within the framed role, time and evaluation. The structure of relationship is also formalized with a written document. The process in this level of relationship requires a high level of leadership, trust and productivity in highly developed communication as well as equal idea sharing and decision. In this relationship both parties can share courses (material, curriculum, visiting lecturer, and fellowship lecturer), international library network, and member of the same association. This collaboration and its levels as well as their activities are found scattered in the selected universities in case studies above.

In order to create a strong and sustainable collaboration, the literature mentioned above, states that each party must maintain its commitment on sharing resources, trust (accreditation) and authority (policy).

In term of collaborative institutional education, required resources are in shape of financial budget, infrastructure, leadership, culture, common languages (e.g., English), professors, researchers, and potential students. Comparing to the universities

in developed countries, the universities in developing countries generally has lower development level of resources.

Accordingly, the collaboration is mostly in cooperation level, which does not ask intensive sharing resources between partners. The cooperation is in one way and universities in developing countries play a connection role between their students and the universities in developed countries. Whereas, if there is collaboration among universities in developing countries (Dg-Dg), the development of resources are quite the same; partners can do complementary and equally role by sharing resources, accountability, and authority as well. This highest collaboration level postulates partners to build up internal resources in order to meet regional collaborative standard.

At the same time, the highest collaboration also leads partners to compete in term of improving reputation to provide better quality of services, to get more numbers of students, and gain higher accreditation. Actually, in building collaboration, universities have to pay attention to the importance of institutional accreditation.

Accreditation today is not only important indicator for certifying the quality of education (Altbach & Knight, 2007; Roller, Andrews, & Bovee, 2003) but also ensuring a good reputation. Accreditation shows universities responsibility to its stakeholders, especially partners and students, about their commitment on quality. In addition, international collaboration as part of the model requires internal policy and shared purpose on the same issue, commitment on resources and process that involve leadership and communication among partners.

It is commonly known, most universities in developed countries have a better accreditation than their partner in developing countries. Differences in accreditation will become one of the obstacles in building collaboration between universities in developing countries with universities in developed countries.

The regional collaboration firstly pushes universities in developing countries to improve reputation in the same region, and then goes further for the global accreditation. This status give universities in developing countries confident to equal collaborate with universities in developed countries. The improvement in resources and accreditation requires the supporting from policy. Policy comes from university, country, and regional association.

At first, starting with the institutional leaders perception, the university accepts whether challenges and strongly eager to promote the international collaboration in a higher level. Instead of dealing with the easiest way, the cooperation, the university should put more effort in long-term strategy in order to step-by-step improve the internal resources and get the international accreditation. To reach this performance, the government is required not only to assist the university in terms of funding and regulation, but also promote association between nations. The role of the government is to issue legislation that provides legal support to domestic universities to build the collaboration (Bhandar, 2008). This legislation might also be related to the availability of or funding to build the collaboration. Likewise, with supporting from regional association and/or international organization in relation to financial budget and policy, the collaborative institutional education conveniently handles in the highest collaboration.

If we take the example of the ASEAN University Network (AUN) it should further develop initiative on how to support collaboration between universities in South East Asian countries. This initiative is aimed at strengthening the network of cooperation among universities in ASEAN countries by promoting collaborative studies and research programs. Therefore, this model proposes that in building international collaboration, the role of external factor is present, especially from the government and support from regional organization.

Through the above discussion, collaborative institutional education is recognized as commitments to sharing and transferring knowledge as well as a resource in order to build up human capital and R&D. The collaboration would be based on three core activities: teaching, research, and community services. Such collaboration requires similarity in terms of resources (human capital, facility, and languages), accreditation, and policy. In addition, trust and leadership will make the collaboration feasible and smooth. Table 2 is summary of collaboration institutional education proposed model.

6. Conclusion

It is obvious that the 21st century will be a knowledge century, in which the most significant economy will be the knowledge economy and it is also clear that, in this century, higher education and research will be more essential than it has ever been before (UK/USGroupStudy, 2009). Since higher education has entered an unprecedented period of globalization, collaboration between universities is a key issue for developing countries as well as for developed countries.

This collaboration seems to be an enabler for employability at the regional, organizational, and individual level. The contemporary global economic situation urges for international collaboration in industry as well as in academics. By scrutinizing five universities in Vietnam, Indonesia, Australia, Netherlands, and the worldwide universities network, we found that the collaboration exists in wide-ranging forms from the simplest to the highest level.

The universities in developed countries have good conditions and capacities to make better collaboration in quantity and quality. Those universities also pay attention to developing academic activities that do not only include teaching and learning, but also R&D. The collaboration actually strengthens their capacity and reputation. It is easier for them to become a member of an academic association. At the same time, most collaboration among universities in developing countries takes place in pair.

It is a single link between two universities, not a network among partners universities. Such links have mostly connected the university in developing countries with the university in developed countries in one direction. It means that the southern universities are still domestic universities. The university's reputation is affected on a domestic level, not on a global level. The reputation of the university cannot cross the geographical border.

Even though it has a high quality domestically, it is not globally recognized. It is understandable why many universities in developing countries have not yet

Table 2. Collaborative institutional education

Collaboration Stage	Teaching	Research	Resources	Accreditation	Policy
Collaboration	- sharing courses (material, curriculum) - international library network	- visiting lecturer - fellowship lecturer	- completing shared vision and resources	- member of the same academic association and accreditation (trust)	- shared decision-making within the framed role, time and evaluation - relationship requires a high level of leadership
Coalition	- exchange students (both inbound and outbound) - assist in learning, practicing	- joint research projects - co-supervisors - exchanging lecturers	- sharing idea - allocating resources - commitment for a certain minimum period of time	-sharing commitment	- members have a role in decision making
Coordination	-facilitating student/staff internship programs from partner universities	- joint organizing of international conference and co-authoring	- match needs	-sharing responsibility in coordination	- manage relationship among partners
Cooperation/ Alliance	- dual degree program - join training/degree program	-supporting partners in research	- Partly resources contribution	-benefiting from partners' benchmarking	- specified role of people
Network	- sharing information about each university - business card exchange in meeting or conference				understanding in loose structure of relationship and involve minimal decision making

owned any international accreditation or have not become members of international academic association. Additionally, the universities in developing countries appear to be one way bridges in order to send their students to the partners in developed countries. Sending students abroad is definitely a way to build up domestic human capacity. However, not many students can afford the elevated tuition fees and elevated living expenses in developed countries whereas a large portion of students in developing countries come from low income family. Since only a small number of students can participate in overseas studies, this program or collaboration will not create significant benefit for the remaining students.

In fact most of them are considered to be the future domestic labour force; therefore regional collaboration is more attainable and advantageous in terms of cost, regional development, regional collaboration, and regional friendship network. In the aspect of research and community service, the expansion in global collaborations among researchers is a consequence of the dynamics by individual scientists linking

together for enhanced recognition and benefits (Wagner & Leydesdorff, 2005). In addition, more universities today have to cooperate with the private sector for funding and supporting the execution of research programs. Despite the fact that we know what today's marketable areas are, we do not know those of tomorrow, and only open-ended research will lead us there. The collaboration of universities and private sector is crucial and can only be effective in a global context.

The discussion has emphasized that universities from developing countries will have to build collaboration with other universities. The development of collaboration should look at regional universities as the first priority while building networks with partners from developed countries, which can be the ultimate goal. Therefore, collaboration among universities in developing countries and with developed countries is necessary. It provides more opportunity and diversified solutions in order to build up domestic human capital. The collaboration not only serves as a benefit for the external resources, but also in order to improve the internal capacity to meet the standards of collaboration. In conclusion, collaboration is an enabler for employability.

The model of collaborative institutional education contributes in an important manner to literature on collaboration in higher education. The model can conduct empirical research and enhance collaborative programs in practice. This model is also more visible and feasible for universities that are still in the early stages of seeking international collaboration. Based on this synergy and experiences gained from collaboration with universities from the same region and the same level, the universities in developing countries have a better starting point in order to collaborate with the universities from the developed countries. In the end, the international collaboration can be conducted in a more balanced situation and this can create additional benefits for both parties involved and especially for the student as the core stakeholder.

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