

## **A Study on Designing an Education Cooperation Model for HRD in Asia-Pacific Region: Focusing on Education Project of APEC**

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The purpose of this study was to propose an education cooperation model for Human Resources Development (HRD) in Asia-Pacific region in response to environmental changes in business and industry. In order to carry out the model, this study reviewed the key features of human resources in the APEC which is a symbolic regional integration entity in Asia-Pacific region, shaped critical issues related with HRD in this region and then analyzed the trends of education cooperation projects conducted by the APEC in terms of topics, implementation methods and proposing economies of the projects. In result, this study proposed a triangular education cooperation model for HRD consisting of three elements: Voluntary Partnership, Information on Needs and Support for Cooperation. These interconnected and interdependent elements were designed to encourage actors to participate in education cooperative activities with their own willingness, produce and manage research-based information required for sustainable cooperation and support communication and connectivity among actors for effective activities. Also, this study expected that this model would make a commitment to narrowing educational divides, enhancing global-standard skills development, facilitating public and private partnership and organizing the foundation of future education for cultivating creative talents in the era of innovation for APEC members.

*Keywords : Asia-Pacific Region, APEC, Human Resources Development, Education Cooperation, Triangular Cooperation Model*

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## Introduction

### Background

Global society has experienced the ups and downs of economic development and the paradigm shift at political, social and environmental aspects thanks to connectivity, networking and mobility resulted from globalization and technological evolution under globalized and interdependent circumstances, ironically (Castells, 2004; Sheller & Urry, 2005; Webster, 2014). In this context, the keywords and the terms of the 4<sup>th</sup> Industrial Revolution describe the extent how much the contemporary global society influences the environment of industry and business such as Artificial Intelligence, unmanned vehicles and machines, new business models like sharing economy, platform-based business ecology, Big data analysis and so forth.

These challenges are getting extensive and intensive with huge expectation of future development but at the same time cast fears to the emerging and under-developed societies how to catch upon this disruptive change and take their own ownership without dependency upon developed societies or leading entities like global based companies and investors. For those relatively new commers in the 4<sup>th</sup> Industrial Revolution, it is critical to take holistic and sophisticated approaches, thus nature to consider how to take collective actions (Yeon, 2017, Jun. 16b) in working with leading and emerging societies. Under this circumstance, interestingly, global society, regardless different situations and conditions of each region, pursues economic and social changes and makes progress in common issues like race, gender, multiculturalism, environment and international relations. It still requires endeavors and resources to form social consensus and make a strategic decision to tackle the challenges (WEF, 2017). Overall, a single region, country, or individual entity might encounter different types of challenges and changes but commonly the challenges and changes are extensive and intensive by globalization, disruptive

innovation and interdependent and interconnected relations in global society.

Asia-Pacific region is not exceptional. This region now faces a slow growth in the downturn of global economy as well as variety of challenges from politics, environment, society, culture and so forth (IMF, 2016). This region is a symbolic engine of global economic growth with dynamic social development, various spectrum of geopolitics and enriched human resources. It can also be interpreted as a place to present conflicts of interests even between neighboring countries such as trade tension between Korea and Japan, territorial disputes between Russia and Japan and China and the Philippines. Historically, this region is required to reconcile the disputes among member states under the same umbrella of regional integration bodies like APEC, ASEAN and so on. It is quite clear that this region is required to find a coordinated and harmonized efforts to make a progress and tackle the challenges, especially caused by the diversity of this regional aspect.

As a regional economic cooperation forum in this region, APEC (Asia-Pacific Economic Cooperation) has been seeking a way to deal with the challenges by collaborative actions. In alignment with these current issues, it is nature to understand that education and human resources development can provide a place to discuss diverse issues of regional development as a cross-cutting issue and directly propose a feasible and practical way to serve a platform of cooperation. Following the APEC's vision, education cooperation is expected to facilitate the good communication and collaborative activities among APEC members because education can help the members understand existing and potential divides among them and prepare a way to reduce the divides. Thus, it is critical to understand what educational efforts have been and done and figure out the ways to fill out the divides with readiness and current condition of APEC members.

As for the Human Resources Development (HRD) in Asia-Pacific region, APEC's education and labor ministers have presented directions how to coordinate education and labor efforts and resources because HRD is regarded as an engine to boost economic growth and facilitate shared prosperity in the region considering

the proven cases of development such as South Korea, Chinese Taipei, Hong Kong and Singapore. Thus, APEC leaders let the HRD Working Group (HRDWG) to produce and implement cooperative projects about education, capacity building, labor and social safety net (APEC, n.d.). These directions and projects present the interests and needs of 21 members of APEC toward better progress of HRD. Since the agreement of APEC Education Ministerial Meeting (AEMM) in 2012, the APEC's education ministers have recognized the importance of cooperation in this region and directed a practical and political approach of Education Cooperation Project (ECP) which has been implemented by the Ministry of Education of Republic of Korea (APEC, 2012; 2016a). Based on the investigation of current status of HRD and educational efforts in the APEC region, this study was designed to carry out the implication of the education cooperation model proposed by the ECP and recommend cooperative actions required for this region representing the wide spectrum of regional diversity.

Recently, APEC education ministers and representatives of HRD working group and EDNET (education sector under the APEC HRD working group) recognized education cooperation is required but only initiated by a few numbers of the leading members. Even though the APEC launched and facilitated structure reform, the APEC's Independent Assessment Report (APEC, 2014b) stated that the HRD and education in APEC should improve results-based management and effectiveness of their actions and prove the achievement with tangible outputs and harmonized participation of APEC members. APEC's education projects have been conducted as single year actions mostly and led by the specific leading members due to the different level of capacities and readiness of international cooperation in education. According to the initiative entitled APEC Connectivity, it has a key pillar of people-to-people connectivity and highlights the educational approach to enhance international cooperation among APEC members and invite collective actions for economic growth and progress (APEC, 2014c). Thus, it is critical how to satisfy the demands of challenges in achieving the goals of APEC in alignment with HRD.

APEC EDNET recognized the necessity of a concrete model or scheme to enable APEC members to conduct cooperative actions and close communications without any hitch or barriers because of different level of educational and cooperative capacities (APEC, 2012). In addition to the required actions from HRD Working Group and EDNET, the APEC education ministers initiated a series of discussion how to carry out feasible education cooperation for encouraging APEC members at the 5<sup>th</sup> AEMM in 2012 and 6<sup>th</sup> AEMM in 2016 in response to the urgent requirement of APEC members for achieving the significant progress of HRD in the APEC region. In this context, this study was initiated to present a model for HRD in the Asia-Pacific region by education cooperation of APEC.

Since the 6<sup>th</sup> AEMM, APEC Human Resources Development Working Group has implemented APEC Education Strategy for collaboration between APEC members and helped them work with other APEC fora and multilateral organizations. Prior to the endorsement of APEC Education Strategy, there has been a series of discussion how to enhance educational cooperation for carrying out significant impact and enhancing sustainability of educational actions. The 5<sup>th</sup> AEMM reached to the consensus to shape a tangible model of education cooperation based on theoretical foundation and relevant evidences.

The education cooperation model is the output of theoretical and practical discussion on how to reach to the specific level of education cooperation. It cannot be denied to make a commitment to shaping the APEC Education Strategy, which is a sort of action plan for collaborating education projects and institution-level cooperation of APEC HRDWG currently. In other words, APEC Education Strategy can find its theoretical and practical foundation from this model. As a framework, this model can be applied for measuring the progress of collaborative actions pursued by the APEC Education Strategy and providing a variety of ideas of educational actions under the umbrella of APEC. In this context, this proposed model needs to be interpreted by a theoretical way. This is aligned with the objective of this study.

## Literature Review

Global society seeks opportunities of economic growth and social development market access, cutting-edge technologies, human resources, liberalized trade and investment (Schiff & Winters, 2002). Coordination and alignment among global and regional level interests and actions should be discussed and carried out for confronting current challenges (Stimson, Stough & Robers, 2006). Even the notion of the 4<sup>th</sup> Industrial Revolution emphasizes the reframed understanding of human being and points out that inclusive growth and security at global and national levels, and global standard competency and employability at individual level (Schwab, 2016).

With its flexible and open system, APEC has invited its members to implement projects based on cooperative actions mainly covering energy, investment, business, HRD and ICT (APEC, n.d.; Yeon, 2017, Apr.21a; 2017, Jun.16b). The precedent studies and APEC have consistently described the existing and potential issues of diverse aspects of the region. In line with a series of dialogue and discussion, the concrete discussion on how to carry out a substantial scheme of cooperation itself in this region was just started from the AEMM in 2012 by adopting the theme of the Meeting (APEC, 2012). APEC's leaders also agreed to initiate the APEC's Connectivity Blueprint for connecting physical, institutional and people aspects for achieving inclusive and resilient development in the region in 2013 (APEC, 2014c). It was about time to set up a mechanism to connect key components for economic and social development in APEC region following the policy direction and perspective on cooperation.

## Asia-Pacific, HRD and Education Cooperation<sup>1)</sup>

APEC represents the hybrid regional integration allowing members not to be bound for strict rules and regulations and designated duties (Wanandi, 1994) and is featured with cooperation and consensus process and project based cooperative actions with voluntary support and participation of members (APEC, 2017b). This regional integration entity has two-tiered operational mechanism consisting of Policy Level and Working Level and should implement working level activities by implementing projects in accordance with the directions of APEC Leaders and Ministers (APEC, 2017b) as shown in Figure.1. It means that the trends and interests of cooperative actions can be appealed by the projects proposed and implemented by APEC member economies. APEC describes its members as economy (APEC, n.d.), thus this study also states the members as APEC members

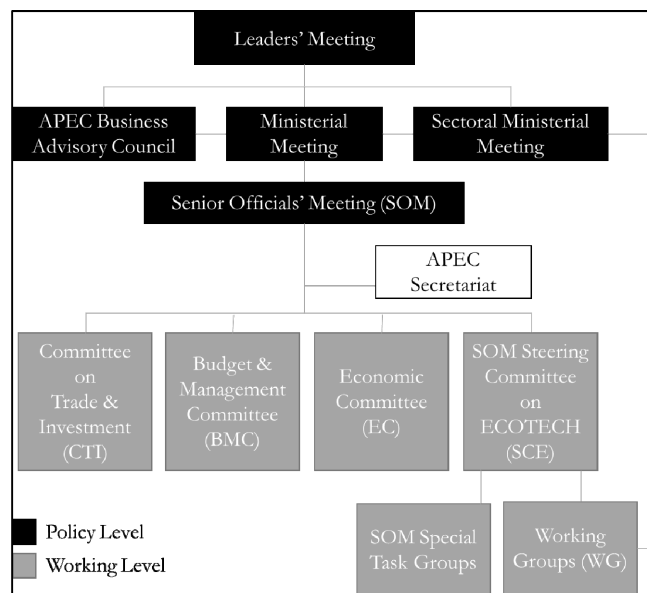


Figure 1. APEC Organization Chart (APEC, n.d.)

1) This section is based on the analysis of Trends in International Cooperation Projects for Human Resources Development in Asia-Pacific Region: focusing on APEC (Asia-Pacific Economic Cooperation) Policies and Projects (Yeon, 2017, Apr. 21a)

or member economies. Even though APEC members have different conditions of politics, economy and society, the APEC enables its members to take equal positions and shared perspectives about economic growth in the APEC region. But it is critical that the differences and divides among APEC members are still existed, thus APEC leaders and ministers try to suggest coordinated directions and measures to carry out shared prosperity in this region.

In order to get the picture of the needs of HRD in the APEC region, understanding key indicators of HRD should be first. According to the current analysis of the statistical data, the APEC region can be characterized by three key issues: aging society, divides of business and industrial environment and employability (Yeon, 2017, Apr.21a). Firstly, Figures 2-1, 2-2 and 2-3 show the age dependency ratios between 2012 and 2017. The overall age dependency ratio figures out that APEC regions' ratio is lower than the worlds. Likewise, the average age dependency ratio of 0-14 aged young population in the APEC region (Figure 2-3) reaches to 28.4% and is lower than the average ratio of world (Figure 2-1) (40.1%).

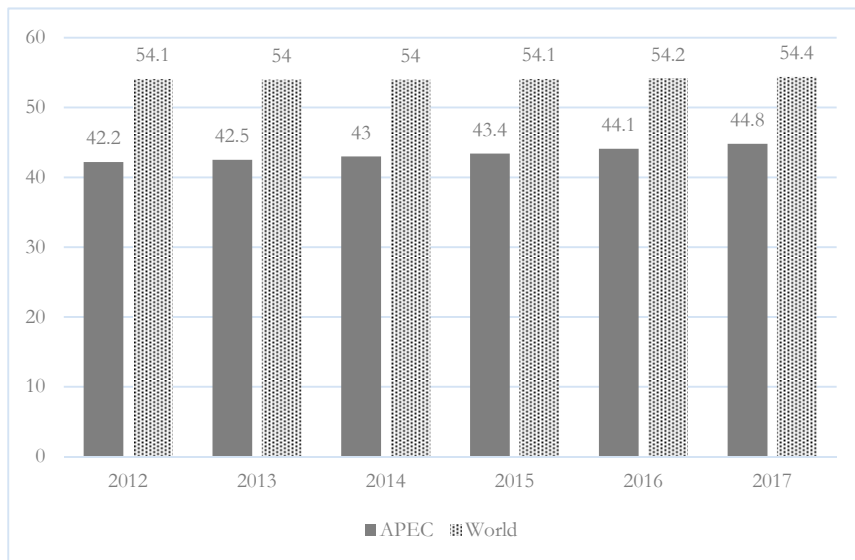


Figure 1-1. Age Dependency Ratio (% of working-age population) in the APEC region 2012-2017 (APEC Key Indicator Database, <http://statistics.apec.org>)



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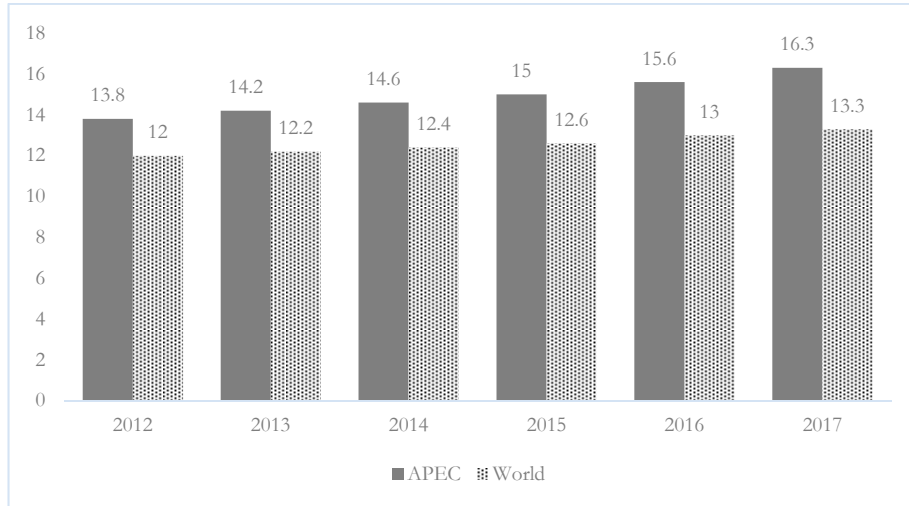


Figure 2-2. Age Dependency Ratio, old (% of working-age population) in the APEC region 2012-2017 (APEC Key Indicator Database, <http://statistics.apec.org>)

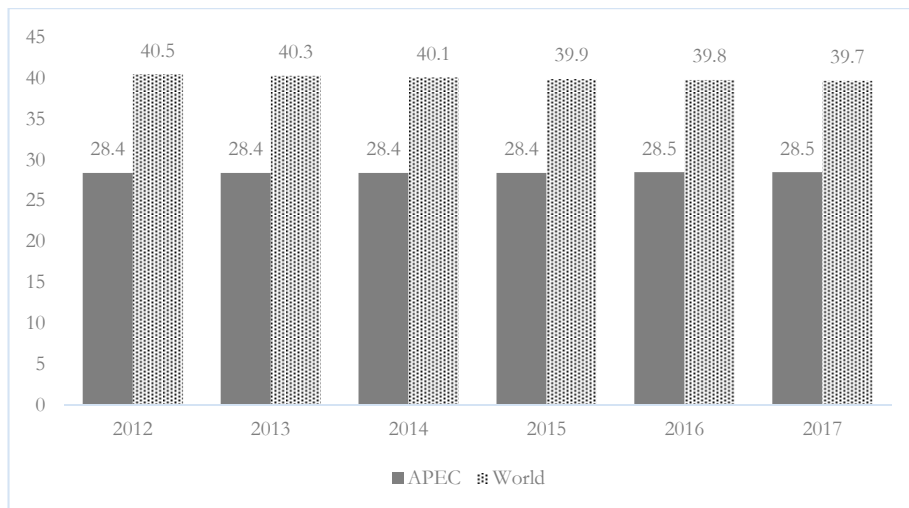


Figure 3-3. Age Dependency Ratio, young (% of working-age population) in the APEC region 2012-2017 (APEC Key Indicator Database, <http://statistics.apec.org>)

However, considering the current increasing ratio of population in the APEC region, it is marked at 0.69% and ranked under the global average at 1.18% between 2012 and 2017 (APEC Key Indicator Database, n.d.). In particular, age dependency ratio of old age (Figure 2-2) significantly presents that APEC region is entering the era of aging society. Globally, average age dependency ratio of working age population of old age is 12.6%. However, APEC region indicates the average ratio of age dependency of old generation is 14.9%. APEC region is led by comparatively young working aged generation but at the same time enters the era of aging society.

Still, APEC takes 60% of world trade and 50% of GDP as a dynamic engine of global economic growth (APEC, 2017e). It is nature that the quantitative scale of employment is comparatively larger than any other regional integration bodies and any other countries. According to the APEC Project Database (<https://aimp2.apec.org/sites/PDB/default.aspx>), the averaged unemployment ratio of APEC is around 4.35% which is lower than global average rate (5.19%). However, the quality of job opportunity might be interpreted differently. APEC presents higher rate of GDP per capita (USD16,647) than global average (USD10,748). Nevertheless, there is significant deviation between leading and emerging markets in the APEC region because 11 members of APEC cannot reach to the average GDP per capita of APEC and 8 among those 11 members are under the average of world. In other words, developing countries in this region require creating of decent employment. Based on available data from the APEC Key Indicator Database (<http://statistics.apec.org/>), APEC members tend to provide more job opportunities in services than agriculture and industry considering the ratio of total employment. Figure 3. sketches out that the employment rates between 2012 and 2017 in the service area are increased from 48.5% to 52.9%. It is followed by the employment in industry and agriculture (APEC Key Indicator Database, n.d.)

APEC Regional Trends Analysis reports that overall employment ratio is increased by 10% in 2015 but the employment ratio of low and medium level skilled works was only 1.1% (APEC, 2017d). The developing members of APEC

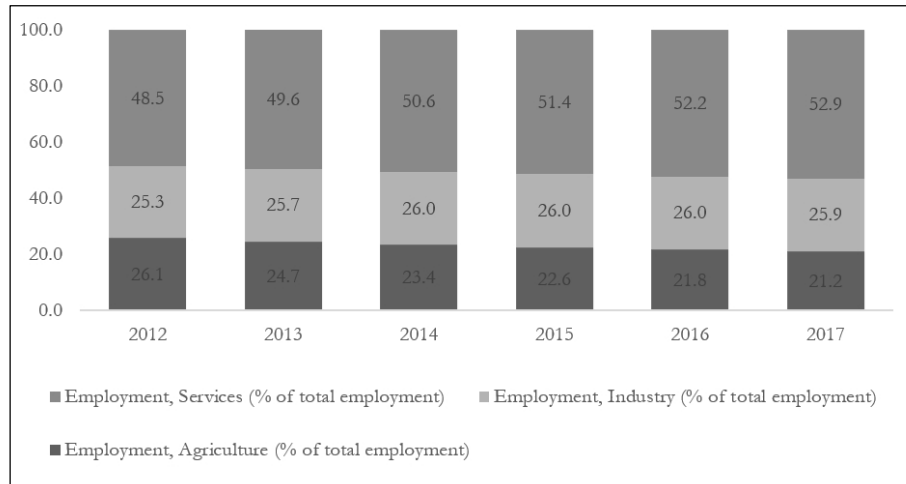


Figure 3. Age Employment Ratio in Employable Areas 2012-2017 (APEC Key Indicator Database, <http://statistics.apec.org>)

need to cultivate workers equipped with the competencies required for the service areas which provide comparatively decent job opportunities. Therefore, APEC leaders emphasize Human Capital Development as one of the priority areas for economic growth and social development in the region (APEC, 2016a; 2017b; 2017d). This reaches that APEC members are required to expand support and investment in education and training for cultivating human resources in response to the challenges and changes of business and industrial environment.

Lastly, gender equality is another key issue in the HRD. According to the employment ratio between male and female workers, APEC is still required to tackle gender equality in job opportunities. As of 2016, total employment ratio in the APEC region reached to 69% and male employment ratio recorded 77.4%. In contrast, female workers' employment ratio only hit 60.5%. Recently, key factors leading the paradigm shift in business and industry are encouraging economic and social activities of women and strengthening their independent positions and status in societies (WEF, 2017). At least, APEC region should consider how to encourage female workers to be well prepared and competent to get hired and/or to create job opportunities by themselves.

## Education and HRD in APEC region

APEC encounters challenges and changes of global business and industries and needs to cultivate well-profiled and high skilled human resources along with creating decent job opportunities. However, this region is still required to narrow the divides among regional, national and local areas as well as demographic status. HRD is not only for cultivating skills, knowledge and competencies of workforces but also connecting people and people (Manekar & Gulhane, 2017). Basically, HRD needs to be discussed and implemented at both national and organizational levels and requires institutional efforts to carry out practical approaches to develop skills and abilities and pursue individual and social goals (Manekar & Gulhane, 2017).

In line with the intensiveness of globalization and regional integration – especially the purpose of regional integration in APEC, HRD is an economic and social dimension to develop a community and being supported by education and training systems (Pépin, 2006). It means that HRD is not only about individual or single country's issue. Considering the purpose of regional integration, additionally, APEC and its members need to have a medium to carry out collective efforts for strengthening the substance of HRD and providing enough decent job opportunities for people within this region. International cooperation in education is able to connect different countries and stakeholders based on the partnership and surely promote cooperative relationship between developed and developing regions (King, 1998; Williams, 2017).

In response to the features of HRD in the region, APEC's ministers in education and labour have emphasized and recommended the directions and practices for human resources with the priority areas. In 2014, APEC HRD Ministerial Meeting for labour issues adopted the theme of *Promoting Quality Employment and Strengthening People-to-People Connectivity through Human Resources Development* and discussed four priority areas for practical approaches: 1) *Supporting inclusive and sustainable growth to address the social dimensions of globalization, including equality and needs of vulnerable groups;* 2)

*Enhancing human resource quality to meet supply chain demands; 3) Facilitating mobility of labour and skills development; and 4) Enhancing the participation of women in the economy* (APEC, 2014a). Followed by the previous achievements of AEMM, in 2012, APEC education ministers directed the implementation of ECP as mentioned above and agreed to adopt the theme of AEMM in 2016 as *An Inclusive and Quality Education*. At the latest AEMM, the APEC ministers and members agreed to deal with cooperative actions for *Individual competencies in basic, higher, TVET educations, Training and lifelong learning; STI capabilities in education; and Employability by transition from education to work for economic and social growth* (APEC, 2016a). These directions revealed that APEC region and members have common interests for providing job opportunities, skills development and economic and social growth by HRD.

## **Research Methods**

In line with the objective of this study, however, it is critical that there has been no discussion on a way to foster cooperation between APEC members for achieving the HRD. In addition, any proposal for APEC and its members should be discussed and recognized by diplomatic procedure and protocol (APEC, n.d.). The literature review could grasp the picture of the current status and demand of HRD in the APEC region

This study is required to consider qualitative approach to gather the needs of HRD and existing practices and proven success cases of educational cooperation retrieving the results of APEC education projects so far. The decision-making process and action procedure of APEC should also be considered; thus, this study needs to have the response of APEC members. With synthesizing these conditions and requirements, this study's key output would be a model agreed and approved by APEC members and applicable for them.

The below three research questions are for attaining the research objective:

- 1) What kind of a cooperative measurement is required to satisfy the different demands and interests among countries like APEC members?
- 2) How does the cooperative measurement tackle the issues about the different demands, interests and divides between APEC members?
- 3) How can the countries identify the common interests of education for HRD and materialize it for carrying out cooperation between APEC members?

In accordance with the directions of the previous AEMMs, this education cooperation model has been discussed by synthesizing the analysis of HRD issues of APEC members and the trends analysis of education projects approved by APEC. AEMM is an educational sector's Ministerial Meeting and serves a place to present education specified policies and directions to APEC members. In addition, AEMM is a right place to approve and apply the education cooperation model for the APEC members. This study is to design and elaborate the model of ECP.

For attaining the research questions, this study adopted a qualitative research method to analyze the demand of education for clarifying the approaches and practice of cooperation, investigate the trends of APEC education projects for identifying success factors and acquiring the feasibility of the proposed model of education cooperation. Regarding the applicability of the proposal, this study conceptualized the research outputs and then designed the model. Considering the needs of education and HRD by APEC members and working environment of APEC, the following processes were conducted for this study:

- 1) Brainstorming and interview: Inviting the representatives from APEC members and experts of education in the region and encouraging them to present the needs of cooperation and applicable ways to achieve the cooperative action for the APEC members.
  - a. The brainstorming was conducted with the participation of an expert group at the workshop in 2015.
  - b. The interview was along with the brainstorming at the workshop and

implemented while the intermediate output of the research was presented and shared with the APEC members at the preliminary meeting for the AEMM 2016. Also, the interview was an opportunity to collect the feedback on the intermediate output of the education cooperation model from the APEC members

- 2) Trend Analysis of APEC education cooperation projects: Collecting the data of the APEC projects pursuing education cooperation and categorizing them into ‘project period,’ ‘project results,’ and ‘number of participating APEC members’
  - a. The selected projects had been proposed and endorsed by the APEC. Especially, the projects sponsored by multi-year funding from APEC and member economies were recognized as successful ones in terms of economic and educational results.
- 3) Analysis by the experts: Organizing a domestic research group to synthesize the ideas and opinions from the brainstorming and interviews and examining the feasibility of the model and then presenting the finalized model to the AEMM 2016. In particular, the three or four exemplary projects containing the best practices were investigated for extracting the key implications of success model of education cooperation
- 4) Follow-up: Tracking the follow-up actions at the APEC after presenting the proposal and reviewing the responses of APEC members for checking up the applicability and feasibility of the model.

## **Research Results**

### **Brainstorming and Interviews**

The brainstorming was held by a workshop with the presence of the

representatives of APEC members and the interviews were conducted through the workshop and the preliminary meeting of AEMM 2016.

With the support of Korean Ministry of Education and the Institute of APEC Collaborative Education (IACE), 18 representatives from 11 APEC member economies and organized a draft committee of Education Cooperation Project. Through the one-day workshop in 2015, they discussed the ideas of identifying the needs, challenges and shortcomings of education, discussing cooperative ways to support each other and call for collective actions by supporting each other and then propose a voluntary participation and systematic and sustainable support for APEC members considering the different capacities of education. The representatives also suggested that the cooperative way should be synthesized to invite participation, encourage exchanges and collaboration among APEC members, and carry out a shared framework to present principles and guidelines of cooperation for same understanding on cooperative actions. Based on the demands, the results were reflected to the prototype of education cooperation model with three key features: effectiveness for organizing a governance of voluntary participation, sustainability for accelerating and stabilizing a process to support APEC members for participating in cooperative actions and relevance to understand the directions of APEC leaders, education ministers and connect them to the working level situation of education for boosting cooperation as a way of sharing the information on need of education.

As per the results of this intermediate output, the APEC ministers recognized the progress at the APEC Ministerial Meeting Document (APEC, 2015a) as following:

*"... We support efforts for economies to cooperate on education best practices such as through the development of APEC Education Cooperation strategies, based on the request of the Education Cooperation Project to be submitted to the 6th AEMM..."*

Prior to the AEMM 2016, the modified model with the triangular-shaped model



was presented at the preliminary meeting of the AEMM 2016 for corresponding the needs and perspectives of education cooperation from APEC members. In order to achieve the feasibility of the model, this study was conducted to elaborate the initial idea of education cooperation in the APEC region with the theoretical and practical reaches on education cooperation activities made by APEC members and their education projects.

### Trend Analysis of Education Cooperation Projects

APEC seeks significant progress on HRD by education, capacity building, labour and social safety net and organizes three working-level networks: Education Network (EDNET), Capacity Building Network (CBN) and Labour and Social Protection Network (LSPN) under the HRD Working Group (HRDWG) (APEC, n.d.).<sup>2)</sup> APEC education projects could be interpreted as educational approaches applicable for HRD in the APEC region. This study was to investigate the topics, project implementation methods and key project proposing members for carrying out implications of key elements of education cooperation. As mentioned above, APEC encouraged its members to propose and implement projects based on mutual understanding and cooperative participation among them. The preferred topics of the projects in EDNET could be understood as the keen interests of APEC region how to make a commitment to enhancing HRD. And, the ways of participation and methods of project implementation show the perspectives of APEC members to pursue cooperative actions between themselves. Therefore, this study analyzed the trends of projects of EDNET with these lenses. It was also a way to ensure the feasibility of the proposed cooperative way after the trend analysis because those projects were officially approved and monitored by the APEC for successful completion.

Firstly, according to the APEC's project database, as of 2018, totally 93 projects

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2) Based on the information of the APEC official website ([www.apec.org](http://www.apec.org))

were proposed and conducted between 2000 and 2018 under the umbrella of EDNET. Based on the directions of previous AEMM and EDNET meetings, this study categorized the projects into: Information and Communication Technology (ICT); Higher Education; Vocational and Technical Education; Mathematics and Science; English and Foreign Language Education; System Reform and others. ICT was revealed as the mostly preferred topic (21 projects, 23% of total projects) in the EDNET followed by Higher Education (19 projects, 20% of total projects), Mathematics and Science (17 projects, 18% of total projects) and Vocational and Technical Education (15 projects, 16% of total projects). In particular, referring to the latest trends in global and Asia-Pacific regional business and industries, ICT, Higher Education and Mathematics and Science relevant projects echoed the needs and interests of APEC members to cultivate the competencies and skills development required for a wide spectrum of business industry in this region as well as the changes of technological innovation and disruptive changes. It was also notable that APEC members pay attention to implement education cooperation projects for enhancing job opportunities by vocational and technical education projects. However, there was a question whether the target areas of projects could reflect the variety needs of business and industry in this region referring to the difference between leading and emerging markets.

**Table 1. Number of Projects Conducted in the EDNET 2000-2018**

| Topic of Project                       | No. of Project | Ratio (%) |
|--|----------------|-----------|
| ICT                                    | 21             | 23        |
| Higher Education                       | 19             | 20        |
| Vocational and Technical Education     | 17             | 18        |
| Mathematics and Science                | 15             | 16        |
| English and Foreign Language Education | 5              | 5         |
| System Reform                          | 3              | 3         |
| Others                                 | 13             | 14        |
| Total                                  | 93             | 100       |

\* Source: APEC Project Database (<https://aimp2.apec.org/sites/PDB/default.aspx>)

It is related with the vision and direction of APEC Connectivity Blueprint to achieve the balanced growth in APEC region which takes higher than 60% ratio of global trade and influences global market is operated by interconnected and interdependent global supply chain system (APEC, 2014c).

As per the methods of implementing projects, there are three categories: research, development and exchange (Jang, Suh, Yi & Shin, 2014). Research relevant projects are implemented by survey and needs analysis, case and comparative analysis, reporting, symposium, forum, conference and so forth. Mostly these projects have been presenting foundation or background for initiating policies, guidelines, evidences and so on. Development relevant projects are to develop and operate specific outputs like setting up indicators, organizing training programs, producing teaching & learning materials and so on. And, exchange relevant projects aims at encouraging knowledge and information transfer, mobility among scholars, students, administrators and experts, supporting student camps and volunteering activities and so on.

APEC members try to serve educational cooperation by implementing research-oriented projects (63 projects, 59% of total projects) including seminar, symposium, survey and others followed by development-oriented projects (25 projects, 24% of total projects) such as web development, development of indices and training programs. Exchange oriented project for personal exchange ranked comparatively lower than others (18 projects, 17% of total projects). Considering the project guidelines of APEC (APEC, 2016a), the research-oriented projects are implemented as one-off or single year projects. Even though the research outcomes are applicable for proposing new and elaborated projects and provide sound ground of proposals, the impact of the projects hardly guarantee the sustainability and long-term effectiveness without follow-up actions and long-term and practical implementation plans. Most of all, it is critical that the results of each implementation activity have been hardly shared in line with the objectives of EDNET and APEC. These projects have been proposed and conducted under the

name of EDNET but there is no any implementation mechanism to enforce member economies to integrate or connect the results of the projects according to the terms of reference of APEC HRDWG governing the rules and regulations of ENDET (APEC, 2015a).

**Table 2. Project Implementation Method of Education Cooperation**

| Type        | Methods of Education Cooperation  | No. of Project* | Ratio (%) |
|-------------|---|-----------------|-----------|
| Research    | <ul style="list-style-type: none"> <li>▫ Survey and needs analysis, case and cooperative analysis, and reporting</li> <li>▫ Symposium, forum, conference, etc.</li> </ul>           | 63              | 59        |
| Development | <ul style="list-style-type: none"> <li>▫ Development and operation, development of indices</li> <li>▫ Development of training programs, teacher learning materials, etc.</li> </ul> | 25              | 24        |
| Exchange    | <ul style="list-style-type: none"> <li>▫ Training and exchange of scholars, students, administrators, etc.</li> <li>▫ Student camp, volunteering, etc.</li> </ul>                   | 18              | 17        |
| Total*      |   | 106             | 100       |

\* If there are more than two cooperative methods in one project, each has been counted towards the total.

\* Source: APEC Project Database (<https://aimp2.apec.org/sites/PDB/default.aspx>)

For grasping how many APEC members participate in cooperative projects actively, it is required to investigate the number of project participating members. According to the guidelines on funding the projects, the APEC and its secretariat encourage members economies to propose and implement self-funded projects. It is not only about the scale of supporting the projects but also the voluntary commitment of the members for achieving the vision and directions of APEC. If a few numbers of the leading members dominate the implementation of projects, however, it cannot ensure that APEC well coordinates and harmonizes participation of members.

The Table 3. shows that the number of proposing members is 16 out of 21 APEC member economies as of 2018. Australia and United States proposed 17

projects respectively. Most projects were conducted by five proposing members (65% of total projects) out of 21 APEC members. According to the project information, Thailand proposed the project with China and Japan as co-sponsoring members. In other words, more than half of education projects have been proposed and implemented by only 5 member economies. It is nature to assume that APEC's cooperative actions in education are dominated and led by small number of member economies belonging to developed areas. A driving force is required to encourage all members to participate in the projects equally. There are still remained necessities to solve divides among APEC members.

**Table 3. Number of Proposing APEC members**

| APEC member    | No. of Projects | Ratio (%) | APEC member      | No. of Projects | Ratio (%) |
|----------------|-----------------|-----------|------------------|-----------------|-----------|
| Australia      | 17              | 15        | Philippines      | 4               | 3         |
| United States  | 17              | 15        | Russia           | 4               | 3         |
| Chinese Taipei | 15              | 13        | Singapore        | 4               | 3         |
| China          | 14              | 12        | Peru             | 3               | 3         |
| Thailand       | 12              | 10        | Chile            | 2               | 2         |
| Japan          | 8               | 7         | Viet Nam         | 2               | 2         |
| Korea          | 7               | 6         | Indonesia        | 1               | 1         |
| Malaysia       | 4               | 3         | Papua New Guinea | 1               | 1         |

*\* If there are more than two cooperative methods in one project, each has been counted towards the total.*

*\* Source: APEC Project Database (<https://aimp2.apec.org/sites/PDB/default.aspx>)*

In summary, the latest features of HRD and education cooperation in the APEC region presented the following three implications:

First, it is critical that voluntary participation should be organized to embrace various kinds of voices in education cooperation for enhancing HRD in the APEC region. Different aspects and conditions of APEC members in terms of HRD, the foundation of proactive and harmonized participation should be settled for APEC members to materialize directions and recommendations of APEC leaders and ministers practically and effectively. In order to connect policy and working level

approaches, education cooperation is required. Otherwise, the decisions at the policy level might remain as just political voices.

Second, education cooperation in the APEC region has been implemented by topics about competencies and skills development required for employability referring to the preferred topics of projects like ICT, higher education, mathematics and science and vocational and technological education. Considering different conditions and status of APEC members, ICT and other technology related projects can be utilized for members to strengthen their capacities of technology and using ICT. Also, it is possible to assume information and knowledge sharing through ICT are critical for exploring cooperative actions within the APEC region.

Third, a multifaced support for cooperation needs to be considered. Institutional and technical support helps the members to narrow the divides among them and sustain cooperative activities in the long-term view referring to the current one-off activities and limited number of participating members.

### A Proposed Education Cooperation Model for HRD<sup>3)</sup>

This study analytical results could show the trends of education projects with three key analytical viewpoints: topics, implementation mechanism and proposing economies. First, for understanding the trends of education projects, this study should highlight what kind of education substance has been selected by member economies, which have been working together for attaining the economic development. The target topics and contents of the projects can reflect the key ideas of member economies to achieve the development. Second, a way of cooperation can explain the effectiveness and sustainability of the projects. In particular, the key interest of this study was to sustain the results of the projects. As per the effectiveness of results of the cooperative actions, it is important to carry

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3) This section is based on the proposal of the APEC Education Cooperation Project (ECP) Report (Jang, et. al., 2015).

out the expected results but need to have sustainable attention and support to maximize the impact of the projects. Particularly, APEC consists of diverse members. It could not be easy to carry out one voice to carry out a specific action and its impact even considering the large geographical areas in the APEC region (ADB, 2017; UNESCAP, 2014).

Table 4. Synthesizing the intermediate research outputs for education cooperation in APEC

| <i>Literature Review</i>  | <i>Brainstorming and Interview</i>   | <i>Trend Analysis of APEC education cooperation project</i>  |
|---|--|--|
| <p><i>Demand of HRD in APEC region</i></p> <ul style="list-style-type: none"> <li>• <i>Diverse conditions of demographic</i></li> <li>• <i>Divides among APEC members</i></li> <li>• <i>Inequality issue (i.e. gender)</i></li> </ul> | <p><i>Demand of education for HRD</i></p> <ul style="list-style-type: none"> <li>• <i>Cultivating high skilled workers</i></li> <li>• <i>Institutional ways to help various stakeholders joining in education for HRD</i></li> </ul> <p><i>Applicable way of cooperation</i></p> <ul style="list-style-type: none"> <li>• <i>Organizing active participation of members</i></li> <li>• <i>Supporting the members beyond the divides among them</i></li> <li>• <i>Setting up a single framework for boosting cooperative actions</i></li> </ul> | <p><i>Success factors of education cooperation</i></p> <ul style="list-style-type: none"> <li>• <i>ICT and online media are applicable for connecting APEC members</i></li> <li>• <i>Joint research, knowledge sharing and information disseminating are preferred ways of cooperation</i></li> <li>• <i>Leading countries' roles are influential for fostering cooperative actions</i></li> </ul> |
| <p><i>Issue</i></p> <p><i>How to narrow the divides and boost sustainable economic growth</i></p>   | <p><i>Issue</i></p> <p><i>How to organize a framework to consider different conditions and demands of APEC members and stakeholders</i></p>  | <p><i>Issue</i></p> <p><i>How to organize online based ways or alternative ways to encourage active cooperation between APEC members, how to boost producing and sharing the information and knowledge for cooperation and how to promote all members to participate in cooperative action rather than a few numbers of leading members</i></p>  |

Based on the implications of HRD status and education cooperation in the APEC, this study could design an education cooperation model combining three key elements: *Voluntary Partnership*, *Information on Needs*, and *Support for Cooperation*. As shown by the Figure 4., these elements are required to be aligned and engage in the whole process of education cooperation. By synthesizing the research output from the literature review, brainstorming, interview and trend analysis, this study could identify the key elements of education cooperation for APEC members and aligning the implications of the elements as following:



Figure 4. Proposed Model of Education Cooperation for Asia-Pacific Region

In result, this study categorized the issues of the intermediate research outputs for carrying out the implications and reached that APEC members could share enough opportunities to go through education cooperation for narrowing the divides by effective medium such as ICT, have a scheme to allow the members not to be behind due to the different level of capacities and then reserve a abundant of sources to plan, implement, manage, evaluate and feedback cooperative actions effectively. In this context, this study elaborates these implicates with the triangular shaped model of education cooperation as Figure 4.

First, *Voluntary Partnership* is a foundation of the cooperation system encouraging actors to participate in establishing a cooperation governance, creating mutually beneficial partnership and conducting cooperative activities at the specific level of



effectiveness and quality assurance by their own willingness. Due to the diversity and difference of APEC, the key features of APEC members were identified by the literature review and trend analysis. The research output presented that APEC members in different conditions struggled with active participation in cooperative actions except leading members. There is also no scheme to invite the inactive members yet. Aligned with the operational principle and guidelines of APEC, this element was highlighted as a core part of education cooperation.

This emphasizes the systemized indication and baseline for actors of education cooperation to carry out proactive cooperation and partnership and embrace working level actors of education cooperation such as agents, institutes, individuals and any other organization as well as regional and national level organizations. Its value is to have voices and issues of a wide variety of needs of HRD and reflect them into implementing educational approaches accordingly. *Voluntary Partnership* also provides actors to sustain their activities and expand the aspects of working areas by connecting a wide range of partners in various sectors not even education. Considering the various needs of businesses and industries, the scalability is not limited to specific areas and actors but needs to be open to various ones. As per the education aspect, *Voluntary Partnership* can be supported by organizing a membership of educational entities and organizations and establishing a structure or organization of maintaining the membership. Practically, it is possible to set two tiered channels of partnership at both policy and working levels. The policy level encourages the stakeholders and participants to join in cooperative actions and carry out relevant guidelines, resources and management for systematic and sustainable actions. For these actions, it is required to have on and offline meetings and gatherings regularly and the participants need to accumulate the results of their meetings and gatherings and share them with the rest of stakeholders. It is aligned with building a community of education cooperation and can be connected to institutional efforts of educational stakeholders. At the working level, absolutely, beneficiaries of education cooperation should have a chance to speak out their

ideas and materialize them practically. Rather than small number of individuals or certain institutes, this study proposes stretching out the members of working level entities by covering from education sectors up to private sectors such as business and industry because education cooperation is not only about academic performance but also intends to carry out tangible results of education for shared prosperity in the APEC region. In this case, it would be possible to set a system of membership for sustaining and systematic participation of stakeholders.

Second, *Information on Needs* represents a function helping smooth operation scheme of Education Cooperation Model for helping actors to investigate needs of education cooperation, explore targeted areas of required actions and projects and improve existing issues of education cooperation. This is aligned with the different level of capacities of APEC members and shortages of applicable resources to go through cooperative actions as figured out at the brainstorming, interviews and trend analysis. Actually, APEC education projects tend to reflect the educational needs from specific members rather than common interests of APEC members. Thus, this element was considered for sharing educational information and discussing educational requirements. It could help APEC members grasp balanced perspectives of educational issues. The success cases of APEC education project presented the shared ideas and collective actions were effective to carry out the expected results.

For that, this study tends to provide reliable and useful sources for actors to design, implement, manage and evaluate cooperative activities for better outcomes. This enables actors to collect, analyse and disseminate reliable and meaningful data and information which are proven evidences of actions and projects proposed and implemented by the actors and useful for carrying out evidence-based operation and evaluation of education cooperation. In order to produce information and data for education cooperation, it is critical to present indicators for getting targeted information and data and support regular collecting, analysing and disseminating them. It should be proposed and managed by continuous and timely research

activities on education. The research outcomes are a sort of assets sustaining and elaborating education cooperation.

Third, *Support for Cooperation* represents preconditions and practices of education cooperation and enables the other two key elements to work effectively, sustainably and efficiently. According to the trend analysis of education projects of APEC, the majority of the projects have been conducted by five APEC members by inviting the rest of the members like a driving force. It can be understood that capacities of administrative and operational support are required to encourage cooperative activities among APEC members and provide shared assets enabling participating members and actors of education cooperation model to continue to their cooperative activities. Specific actors suffering from lack of sources and competencies can join in cooperative activities and projects with this kind of supportive mechanism rather than avoiding opportunities of education cooperation and tackling a free ride. It enables those specific actors to enhance problem-solving skills and proactive actions for education cooperation with other members. In terms of the support services, three types of support services can be considered: consulting and on/off-line events and media for communication and gathering. Consulting is not only about exploring needs and assessing the substance of cooperative activities but also improving the capacities of education cooperation of actors. For sure, on/off-line events help actors to get closer and materialize their ideas by close and good communication.

## **Conclusion and Discussions**

In pursuit of effective and sustainable cooperation for Human Resources Development in the region, the results of this study aimed at responding the three research questions: 1) what kind of cooperative measurement is required to satisfy the different demands and interests among countries like APEC members?; 2) how

does the cooperative measurement tackle the issues about the different demands and interests and divides between APEC members?; and 3) how can the countries identify the common interests of education for HRD and materialize it for carrying out cooperation between APEC members? In response to the demand of APEC members, this study was implemented by the brainstorming, interview, trend analysis on the APEC education projects after the literature review and carried out the key requirements for igniting, boosting and sustaining cooperative actions in education.

First, as per the cooperative measurement, this study proposed a triangular model of education cooperation consisting of three elements which are interdependent and interconnected. *Voluntary Partnership* requires the attention and participation for actors. *Information on Needs* can present reliable and proven evidence to help actors to design and operate cooperative activities. *Support for Cooperation* helps actors to get interested in education cooperation and relevant capacity buildings, find right cooperation partners and deals with administrative affairs including hosting a dialogue among actors. In result, this mechanism could satisfy the comprehensive requirements of HRD by education and education cooperation. Due to the importance and difference of educational system of each country in the APEC region, this cooperative mechanism is required to connect different actors pursuing collective actions and efforts and comprising available and relevant data, information and practices of education cooperation for HRD in this region. In particular, cooperative actions should be supported by comprehensive application of three factors because each factor was required to be connected and based on the requirements of APEC members for achieving the goals of HRD by education. The analytical result reached that these three factors should be connected and materialized as triangular-shaped model. The comprehensive feature of this model was recognized as an exemplary model for APEC members to carry out cooperative actions and proved by the official statement of APEC education ministers. Referring to the model, an education project has been implemented so

far.

Second, as per the operation of the measurement, the proposed model should prove the feasibility, so was shaped and featured by the implications from the best practices of APEC education projects. The cases were selected by considering balanced and harmonized features of educational cooperation. It was proved by the response of the representatives of APEC members through the draft meeting and the preliminary meeting of the AEMM which is the place to encourage APEC members to apply specific actions and guidelines of education under the umbrella of APEC. Following this procedure, this model was recognized at the AEMM 2016 and described with the statement of the education ministers (APEC, 2016a).

*“...We acknowledge the importance of sustainable and practical educational cooperation at the level of practitioners in the APEC region. In this regard, we note that the report contains Education Cooperation Model and strategies to enhance education cooperation...”*

Since the proposal, Korea initiated a multi-year education project entitled *APEC Community for Education Innovation: Joint Research and Implementation to Enhance Innovative Practices in Education and HRD (APEC CEDI)* in accordance with the three components of the proposed model (APEC, 2017a).

*“...how can the countries identify the common interests of education for HRD and materialize it for carrying out cooperation between APEC members...”*

Third, in order to keep grasping the common interests of education for HRD and carrying out cooperation in reality by this model, this study highlighted education is a key to connect the needs of market, business and industries and the capacity building of human resources. The three key elements of the Model are presented to provide more opportunities of developing and/or under-developed countries to access to education and training, cultivate competent human resources

and enhance the employability of decent job. By emphasizing the process of cooperation, the proposed education cooperation model carefully considers a channel of dialogue to accelerate mutual understanding, good communication and knowledge sharing and relieve the unequal distribution of resources and dis-harmonic production and share information and knowledge for effectiveness of education cooperation flawlessly. In addition, this education cooperation model suggests a cycle of cooperative activities through accumulating results and relevant information which is consistently applicable for strengthening the foundation of education cooperation.

When being settled, the proposed model can align the actions with the objectives of APEC toward the significant progress of HRD in the Asia-Pacific region. In the long-term view, this model is able to make a commitment to educational competitiveness in the globalized environment. Based on the cooperation model, APEC members can boost educational mobility and accelerate liberalization of education services. The improved competitiveness can help APEC members and their workers strengthen competency level required by APEC members universally. The expected outputs of this model are such as public-private partnership, people-to-people connectivity, knowledge transfer and quality training programs. These will be assets for improving domestic education system by sharing ideas and knowledge of education system and substances among member economies. Consequently, they can build a virtuous circle of education development by the concrete cooperation model.

Education cooperation influences educational policies of each member economy and leads them into significant development; but ultimately, education cooperation can be useful for promoting collaboration across APEC region. HRD related issues are relevant to critical issues across the sectors of APEC such as communication, energy, agriculture, transportation, fishery and health. Education cooperation can be a key for economic and social development in this region as being a platform for inviting various public and private actors pursuing shared prosperity by human

resources. For further contribution of this model, this study recommends further researches to assess the feasibility of this cooperation model in the implementation process and present the scheme of monitoring and evaluation for elaborating the model continuously. In line with this, a pilot project can be considered. It is not only about the guidelines to indicate required process and actions to carry out cooperative activities among APEC member states but also serve a platform to aggregate data and evaluate the quality of education cooperation.

Throughout the history of APEC, this model was the first proposal to achieve education cooperation for HRD in the APEC region. It was mainly based on the needs of HRD in this region but also universally applicable for the stakeholders based theoretical and practical research activities. After this proposed model, it would be recommended to track the performance of education cooperation under the umbrella of APEC HRDWG and EDNET and analyse the effectiveness of the approach following this triangular model. It might be applicable for education cooperation in other regions later on because of universal approach of this model.

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