

APEC Education Cooperation Strategies

APEC Project [to be assigned by APEC Secretariat]

Produced by
ECP Research Team
ECP Draft Review Committee
Institute of APEC Collaborative Education
Ministry of Education, Republic of Korea
APEC HRDWG EDNET

Website: www.apec.org

For
Asia-Pacific Economic Cooperation Secretariat
35 Heng Mui Keng Terrace
Singapore 119616
Tel: (65) 68919 600
Fax: (65) 68919 690
Email: info@apec.org
Website: www.apec.org

© 2016 APEC Secretariat

APEC# [to be assigned by APEC Secretariat]

ISBN: [to be assigned by APEC Secretariat]

The 5th APEC Education Ministerial Meeting (AEMM) was held on 22-23 May 2012 in Gyeongju, Republic of Korea. Under the main theme of “Future Challenges and Educational Responses: Fostering Global, Innovative, and Cooperative Education”, twenty one Education Ministers from APEC member economies gathered to share their perspectives on education for shared prosperity of the region.

To continue with the ministers’ discussion for global, innovative and cooperative education, the Ministers welcomed and supported APEC Education Cooperation Project (ECP) and expected its report to be submitted at the 6th AEMM.

This study was commissioned by the Government of the Republic of Korea, Ministry of Education as an APEC-endorsed project. The report was written by ECP Research Team and reviewed by ECP Draft Review Committee (DRC), composed of government officials and education specialists recommended by APEC member economies.

We would like to thank the APEC Secretariat, Human Resources Development Working Group (HRDWG), Education Network (EDNET), ECP DRC members from People’s Republic of China, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, Papua New Guinea, Peru, the Philippines, Singapore, Chinese Taipei and Thailand, as well as Korean Ministry of Education, Institute of APEC Collaborative Education (IACE) for their assistance and helpful comments in preparing the report.

EXECUTIVE SUMMARY

The 5th APEC Education Ministerial Meeting (AEMM) was held in May 2012, under the theme “Future Challenges and Educational Responses: Fostering Global, Innovative, and Cooperative Education”. As a result, Education Ministers have jointly agreed on the Ministerial Declaration, which welcomes the APEC Education Cooperation Project (ECP). Also known as the Gyeongju Initiative, the ECP aims at developing education cooperation strategies to enhance future education cooperation between member economies. Pursuant to the guidelines of the 5th AEMM joint declaration, the ECP report, entitled as APEC Education Cooperation Strategies, is to be submitted at the 6th AEMM.

In June 2013, ECP was proposed as an official APEC project at the 35th APEC HRDWG, held in Indonesia, and obtained an official APEC project status in November of the same year. Followed by the 36th and 37th Education Network (EDNET) meetings, the ECP research progress was reported, including the ECP model. In 2015, the ECP Draft Review Committee (DRC) was formed to finalize the ECP Report and in October of the same year, ECP Workshop was held in Busan, Republic of Korea. Thus, with precious contribution and wise insights of ECP DRC members, the ECP Report has been completed under the given title APEC Education Cooperation Strategies.

At the 5th AEMM, Education Ministers emphasized the importance of taking a qualitatively different cooperation stance to overcome the challenges raised by today’s rapid emergence of innovation, technology and many other changes in a globalized economy. Thus, to respond to the issue, the ECP research team has thoroughly analyzed all 67 APEC EDNET projects conducted between the years 2000 to 2015.

By studying the pre-conditions for education cooperation, the researchers have found that EDNET has secured numerous best practices of education cooperation. Yet, there exists possibility to improve the current education cooperation in APEC to adequately respond to today’s challenges. Hence, the researchers have examined and identified relative factors of education cooperation to discover the limitations of education cooperation and provide guidelines.

Thus, the researchers have summarized the suggestions to overcome the limitations in current APEC education cooperation to take the next leap forward as follows:

First, pursue education cooperation in which more economies may participate as opposed to small-sized cooperation which depends on bilateral relations.

Second, increase mutual trust and benefit through long-term cooperation rather than cooperation that is short-term or single-event-oriented.

Third, rather than the current focus on solving microscopic education problems, focus on the subjects such as trade liberalization or investment promotion to enhance the relevance between education and APEC’s primary goal, which is economic cooperation.

The above directions are suggested to create better cooperation between member economies. When constructing the details of cooperation that may assist each member economy, the following points must be considered:

- Establishing a support mechanism that enables developing economies lacking resources to actively participate in APEC education cooperation

- Sharing of the best practices and education cooperation achievements of member economies
- Pursuing education cooperation suitable to the unique education needs of each member economy
- Forming a platform for education cooperation which would result in actual educational and economic outcomes
- Accumulating empirical evidence which can diagnose and continuously improve the education cooperation status in the APEC region
- Constructing a platform for education cooperation upon which cooperation may be encouraged with other APEC working groups as a cross-cutting issue

To actualize the above strategies and directions, a foundation for cooperation must be established in the APEC region. As a result of a close examination of previous EDNET projects and to implement the direction and strategy of the study, the ECP model has been derived.

The model suggested by this study aims to provide better education cooperation strategy, utilizing each and every EDNET member's capacity to a full extent. The ECP model is based on three core elements: Voluntary Partnership, Information on Needs, and Support for Cooperation.

Each element introduces concepts of better cooperation between member economies based on examples and provide specific methods for implementation. For instance, while Voluntary Partnership emphasizes the necessity to construct a governance system in cooperation at conceptual level, APEC Schools and APEC Education Dialogue are suggested as specific means to devise Voluntary Partnership. For Information on Needs, Identifying Needs for Cooperation and Education Policy Research are suggested as two means to address the needs of APEC economies. Then, for Support for Cooperation, Consulting and Web Portal are suggested as effective tools required for cooperation.

Therefore, a strong foundation is necessary to actualize the strategy. It will be an open-platform for member economies in organizing and facilitating suggested projects from ECP. APEC Education Cooperation Strategy requires common efforts of all APEC economies. With voluntary and active participation of every economy, it is expected that ECP be a fundamental infrastructure which will allow APEC to make a qualitative leap forward on its education cooperation. Then, APEC Education Cooperation Strategy would truly be a strategy to reduce repetitive and redundant cooperation and result in increased fruitful cooperation between member economies, which aligns with APEC's vision, a shared prosperity for all.

CONTENTS

EXECUTIVE SUMMARY	i
LIST OF TABLES	iv
LIST OF FIGURES	iv
LIST OF ACRONYMS	v
1. INTRODUCTION	1
1.1 Significance of the 5th AEMM	1
1.2 Value of Education Cooperation.....	2
1.3 Importance of Education Cooperation Projects (ECP)	3
1.4 Utilization of the APEC Education Strategy.....	4
2. ANALYSIS OF RELEVANT PROJECTS.....	5
2.1 The Current Status of Education Cooperation and Implications in EDNET	5
2.2 Implications of Analysis of APEC EDNET Projects	8
3. ECP FRAMEWORK	10
3.1 Voluntary Partnership	10
3.1.1. APEC Schools Consortium.....	11
3.1.2. APEC Education Dialogue.....	12
3.2 Information on Needs	12
3.2.1. Identifying Needs for Cooperation.....	13
3.2.2. Education Policy Research.....	13
3.3 Support for Cooperation	14
3.3.1. Consulting	15
3.3.1.1. Needs Analysis for Education Cooperation	15
3.3.2. Web Portal	16
4. STRATEGIC RECOMMENDATIONS TO ADVANCE APEC EDUCATION COOPERATION 17	
4.1 Establishment of 4-year plan: for EDNET Progress Report at AEMM.....	17
4.1.1. Focus on the Systemization of APEC Schools Consortium, APEC Education Dialogue, and Web Portal (Stage 1).....	17
4.1.2. Reinforcement of Research and Consulting (Stage 2)	18
4.2 Establishment of APEC ECP Centers.....	18
4.2.1. Roles of APEC ECP Centers	19
4.2.1.1. Promotion.....	19
4.2.1.2. Coordination	20
4.2.1.3. Support.....	20

4.2.1.4. Research & Feedback.....	21
4.3 Operation Measures for APEC Schools Consortium	21
4.4 Operation Measures for APEC Education Dialogue.....	23
4.5 Operation Measures for Web Portal.....	24
4.5.1. Measures for Building Web Portal.....	24
4.5.1.1. Development of Wiki.....	25
4.5.2. Operation Strategies for the Web Portal	25
4.6 Performance Management for Information Sharing	26
4.6.1. APEC Schools Consortium Activity Report	26
4.6.2. Issuance of APEC Education Travel Card to Facilitate Mobility	27
4.6.3. Conferring of the Best APEC Schools Award and Outstanding Performer Award.....	27
4.6.4. Operation of the APEC Education Cooperation Hall of Fame	27
4.6.5. Holding the APEC Education Festival.....	28
4.6.6. Raising of the APEC ECP Fund	28
5. CONCLUSION.....	29
5.1 Closing the Education Gap	30
5.2 Global Skills Development	31
5.3 Facilitation of Industry-Academic Cooperation.....	32
5.4 The Design of Future Education	32
REFERENCES	34
APPENDIX.....	35

LIST OF TABLES

Table 1. Number of EDNET Projects Conducted per Thematic Area	5
Table 2. Categorization of EDNET Projects according to Methods (Cooperation Method)	7
Table 3. Number of EDNET Projects Conducted per Member Economy	8

LIST OF FIGURES

Figure 1. ECP Model	10
Figure 2. 4-year Roadmap for ECP.....	17
Figure 3. Cooperation between ECP Center and APEC Schools Consortium.....	23
Figure 4. Transformation in the Web Portal System.....	24

LIST OF ACRONYMS

ABAC – APEC Business Advisory Council
ABTC – APEC Business Travel Card
AEMM – APEC Education Ministerial Meeting
AELM – APEC Economic Leaders’ Meeting
AETC – APEC Education Travel Card
APEC – Asia Pacific Economic Cooperation
API – Application Programming Interface
ASPIRE – APEC Science Prize for Innovation, Research, and Education
AMM – APEC Ministerial Meeting
BMC – Budget Management Committee
CBE – Cross Border Education
CBN – Capacity Building Network
CTI – Committee of Trade and Investment
DRC – Draft Review Committee
ECOTECH – Economic and Technical Cooperation
ECP – Education Cooperation Project
EDNET – Education Network
FGI – Focus Group Interview
FTA – Free Trade Agreement
FTAAP – Free Trade Area of the Asia-Pacific
HRD – Human Resources Development
HRDWG – Human Resources Development Working Group
IA – Independent Assessment
IACE – Institute of APEC Collaborative Education
ICT – Information and Communication Technology
LSPN – Labour and Social Protection Network
MOOC – Massive Open Online Course
NGT – Nominal Group Technique
OER – Open Educational Resource
ODA – Official Development Assistance
OECD – Organization for Economic Co-operation and Development
PPP – Public Private Partnership
PPSTI – Policy Partnership on Science, Technology and Innovation
PSU – Policy Support Unit
SNS – Social Network Service
SOM – Senior Officials’ Meeting
STI – Science, Technology and Innovation
TILF – Trade and Investment Liberalization Fund
UIS – UNESCO Institute for Statistics
UN – United Nations

1. INTRODUCTION

APEC is a regional economic cooperation forum that promotes trade and investment liberalization for the growth and mutual prosperity of the Asia-Pacific member economies. The two main pillars that aim to achieve APEC goals are Trade and Investment Liberalization and Facilitation (TILF) and Economic and Technical Cooperation (ECOTECH). Human Resources Development Working Group (HRDWG) is under ECOTECH.

The APEC Education Ministerial Meeting (AEMM) is the supreme council in the area of education, where education ministers of 21 member economies gather to discuss key issues related to education and Human Resources Development (HRD) for regional economic development and present the direction of APEC's future course, such as planning the next AEMM.

This report is published with the aim to create a foundation upon which member economies can voluntarily take part in the regional efforts to expand and develop the APEC Education Cooperation Project (ECP). This report contains recommendations for the framework and strategies for the realization and materialization of the APEC ECP proposed at the 5th AEMM. The report will first revisit the significance of the 5th AEMM, provide explanations on the current status of education cooperation in APEC, and then describe plans to utilize the ECP.

1.1 Significance of the 5th AEMM

The 1st AEMM was held in the US in 1992, during which it was agreed to establish a cooperation system within APEC for education. Eight years later, in 2000, the 2nd AEMM was held, at which the framework was set for the Meeting to be held every four years. At the 3rd AEMM in Chile in 2004, the reformation of education content and curriculum were discussed, while at the 4th AEMM in Peru in 2008, an action plan to strengthen education cooperation utilizing EDNET was proposed for the sake of the development of school education in the Asia-Pacific region. Although the previous AEMM agendas were mostly centered on microscopic issues related to education, each and every AEMM was meaningful in setting the education priorities for member economies to be guided by for the following four years.

In 2012, the 5th AEMM was held in Gyeongju City, Republic of Korea with keen interest and attendance of the APEC Education Ministers, Vice Ministers and other Senior Officials. It aimed to realize a joint community of peace in the Asia-Pacific through the sharing of education achievements and cooperative exchange related to education. Also, unlike the previous Meetings where priority areas were listed and discussed, the 5th AEMM proposed a framework that included a phased discussion in which issues were categorized into general theme, sub-themes, and priority areas. Sub-themes included issues discussed at the APEC Leaders' Meeting such as globalization, innovation, and cooperation; hence, the 5th Meeting is differentiated from previous Meetings as it tried to establish a connection between the AEMM and the APEC Economic Leaders' Meeting (AELM). Also, when discussing the issue of cooperation, participation of member economies and its implementation system were emphasized. As a result, the 5th AEMM has further promoted overall authority and prestige of the AEMM.

Emphasis on cooperation holds the following significance. First, it provided the opportunity for the cooperation issue to be discussed at the AEMM, differentiating the 5th Meeting from the four previous meetings.

Second, the placement of cooperation as the key issue of discussion elevated the AEMM's suitability with APEC. Previously, AEMMs were criticized for focusing on microscopic issues, which are isolated from APEC's fundamental goal of promoting regional economic cooperation and trade liberalization. Also put under the spotlight was the connection of the HRDWG and its subnetwork EDNET to the AEMM agenda with APEC Leaders' Meeting.

The 5th AEMM agenda has adopted APEC's main goal of promoting free trade and economic cooperation as an important topic. During the Meeting, practical plans were resolved to assure the stature of AEMM not only as a mere discussion forum, but as a prominent Ministerial Meeting accompanied by a detailed action plan to secure the binding power of its agenda. Thus, it has been evaluated that AEMM would be an important Ministerial Meeting for member economies to discuss and share education policy and practice as an effort to achieve the common vision for APEC.

1.2 Value of Education Cooperation

APEC is an economic cooperation body; 'economic' and 'cooperation' are the two key terms. APEC is operated under the system of consensus, unlike other international institutions such as the OECD and UN. Rather, the chair economy of the annual APEC Leaders' Meeting plans, prepares, and supports all high-level meetings. To prevent the abuse of power or monopoly, APEC's cooperation foundation is based on consensus among economies. In other words, to promote economic cooperation and free trade in the Asia-Pacific region, APEC conforms to the principle of cooperative participation of member economies for the management of its Meetings as well. Currently, APEC's Bogor Goal, which aims to realize trade and investment liberalization, is being tested under the global economic crisis, emergence of environmental problems, and disparities of economy and information between member economies. The will to realize cooperation through the values prioritized by APEC is at a standstill due to recent global crisis.

Meanwhile, the common problematic issues of various education related projects launched by APEC EDNET are that the quantitative spectrum of economic cooperation is narrow and the qualitative depth is not enough for having a long-term effect. This was due to inadequate agreement concerning the direction of education cooperation, vague goals, lack of human and material resources to support education cooperation, absence of leadership and failure to establish a governance such as an international support system, as well as an assessment indicator, and insufficient sharing or spreading of best practices as a model guideline or framework for education cooperation, among many reasons.

Naturally, cooperation is required to meet various challenges explained in the above paragraph. Cooperation with the Capacity Building Network (CBN) and Labour Social Protection Network (LSPN) must be considered as to bring the three networks under HRDWG closer with collaborative efforts. Also, room for cooperation must be made available to other working groups in the field of energy, environment, crisis management,

agriculture, fisheries, and scientific technology for the advancement of ECOTECH. Enhancement in project quality by expansion of cross-fora projects will result in increased participation of external stakeholders. Thus, participation of diverse stakeholders towards ECOTECH development will then also draw member economies to focus on achievement of the other pillar of APEC; TILF.

This is a desirable direction in seeking cooperation to realize economic integration and trade liberalization. The topics to be discussed in the education sector are not limited to only education. With various project topics, discussion on member economies' education policies may find its connection in contributing to the region's economic integration and trade liberalization, APEC's ultimate vision. It is therefore only reasonable to hope that EDNET, as it is under the umbrella of the AELM, pursues such goal-oriented activities.

1.3 Importance of Education Cooperation Projects (ECP)

Ever since the establishment of APEC, much efforts have been made in the search for continuous development in the education sector. Education projects of each economy were presented at the annual EDNET meetings and various efforts for education cooperation in the region have been discussed in the past AEMMs.

It is noteworthy that each EDNET project represents distinct characteristics of APEC member economies. However, such efforts do not directly lead the economies to put more importance on APEC cooperation, nor have the education cooperation initiatives have yielded much fruit. This shows that APEC's education cooperation has been at a microscopic level, and that the economies' commitment and will to invest resources and cooperate for inducing great outcome or value, is still very feeble.

The majority of the education cooperation projects carried out by EDNET was a short-term or one-time activity. This phenomenon is evaluated to be due to the absence of an education cooperation foundation within EDNET. The education cooperation foundation refers to a support system that can push member economies towards education cooperation. The ECP hence provides a model and strategies for EDNET education cooperation, which are based on the common characteristics of relatively long-term projects carried by various member economies.

The ECP's three main pillars are Voluntary Partnership, Information on Needs, and Support for Cooperation. Voluntary Partnership refers to the system and leadership that encourages education cooperation, which seeks to establish cooperation governance among economies based on their autonomous partnership. It is a system that is designed to maximize mutual benefit of all member economies and ensures effectiveness of education cooperation system. If governance system is well-structured, the direction and vision of cooperation as well as the achievements made through cooperation will be clear. Information on Needs focuses on the long-term research and analysis of such tasks as the present status of education, education environment, and education improvement to determine which areas should be expanded in quantity and deepened in quality.

Support for Cooperation searches for measures to further vitalize cooperation, centered on the currently established EDNET among member economies, and emphasizes the necessity of mutual benefits for all APEC member economies by building capacity, experience, and providing resources for cooperation. It suggests operating a consulting team comprised of experts from member economies in supporting and solving a subject or assignment. The consulting team will be deployed to the economy requesting support to investigate the validity of its request, devise a plan of action, prepare a report-like paper about the potential connection to ODA, present the findings at a seminar or conference, and share information on the process as well as implementation plans on the Web Portal. If a guideline and methods, etc., for cooperation are specified, there will be a stable education cooperation process.

1.4 Utilization of the APEC Education Strategy

This report proposes a prescriptive strategy to actually implement a substantial education cooperation project in the APEC region, the details of which can be summarized as follows: First, submit to EDNET the ECP's progress report in time for the AEMM, which is held every four years; second, establish ECP Centers, which will be in charge of coordination, support, research, and feedback for the promotion of education cooperation among member economies; third, present an operation plan for APEC Schools Consortium; fourth, present an operation plan for APEC Education Dialogue; and fifth, present an operation plan for Web Portal. The report also proposes 'Performance Management' which will warrant the effectiveness of its strategies among others.

2. ANALYSIS OF RELEVANT PROJECTS

In order to achieve the above pursuits of ECP, it is important that the necessary and sufficient conditions for the facilitation of education cooperation are examined and concisely explained. The ECP model has been formed to facilitate education cooperation among member economies; its foundation can be derived through examining the various implementation forms of EDNET's education cooperation of the past fifteen years.

In other words, the ECP model is realized on the basis of the capacity possessed by EDNET. EDNET has secured numerous best practices of education cooperation thus far. A foundation should be gradually constructed to facilitate more such projects in the future.

2.1 The Current Status of Education Cooperation and Implications in EDNET

The ECP research team has shared the reviewed content of projects conducted by EDNET for the past decade at the pre-symposium of the 5th AEMM held in February 2012, in the Russian Federation and continued to examine the progress thereafter. For reference, as of 2015, there were a total of 67 on-going projects, excluding the projects which have not been actually carried out since 2014 and 2015. The number of projects was confirmed through progress reports and the submission of project proposals was investigated by the concept notes. The major features of these 67 projects are discussed here to present their statuses (See Appendix).

First, Information and Communication Technology (ICT) was the area which accounted for the highest frequency in terms of the theme representing APEC member economies' interests in education cooperation. Approximately 28% (19 out of 67 projects) of projects conducted between the year 2000 and 2015 belonged to ICT.

Table 1. Number of EDNET Projects Conducted per Thematic Area

Thematic Areas	Number of Projects	Percentage
ICT	19	28%
Higher Education	14	21%
Mathematics and Science	14	21%
Vocational and Technical Education	6	9%
English and Foreign Language Education	5	8%
System Reformation	2	3%
Others	7	10%
Total	67	100%

A few distinguished features are evident for ICT-related projects. First, apart from the projects implemented by mainly the Republic of Korea and the US, new project proposals since 2009 have been gradually decreasing. This does not imply that projects in ICT are needless; rather, projects which combine ICT and other thematic areas are on the rise, which can be interpreted as a new characteristic of the projects related to ICT area.

For instance, in case of Chinese Taipei's portal development project for vocational and technical education license, the core theme was categorized as vocational and technical education license itself. Yet, the project further weighed on utilization of ICT focusing on expanded functions of the web portal to share information on vocational and technical education. Thus, the project has combined ICT with vocational and technical education and has cross-cutting characteristic for its subjects.

Also, one of the 6th AEMM sub-themes was agreed as 'Innovation: Promotion of Science, Technology, and Innovation (STI) Capabilities in Education', which shows emphasis on ICT technology and utilization. This shows that ICT is still an important theme of cooperation, which can contribute as a platform to connect member economies' participation.

Meanwhile, the priorities for education cooperation proposed at the previous AEMMs, other than ICT, can be classified into the following: Higher Education, Mathematics and Science, English and Foreign Language Education, Vocational and Technical Education, System Reformation, and others. The sharp rise of issues pertaining to 'Higher Education' since the 5th AEMM is also a remarkable factor.

Specifically, the number of projects and their percentage are as follows: Higher Education accounted for 21% (14 projects), Mathematics and Science for 21% (14 projects), Vocational and Technical Education 9% (6 projects), English and Foreign Language Education 8% (5 projects), System Reformation was 3% (2 projects), while others accounted for 10% (7 projects).

Second, in the perspective of sustainability of cooperation, the period of project duration cannot be ignored. According to the analysis results on project duration, about 91% of projects lasted for five years or less, and 23% (13 projects) of them prolonged for less than one year.

The demand for a long-term cooperation project was also demanded at the APEC level. The Budget and Management Committee (BMC), which advises Senior Officials' Meeting (SOM) on budgetary, administrative and managerial issues, approves 'Multi-year projects'. Multi-year projects refer to long-term and strategic projects which align with APEC Ministers and officials' recognition of their importance.

By supporting projects maximum of five calendar years, a minimum of 11 co-sponsoring economies out of 21 APEC member economies would seek to build capacity in achieving strategic goals listed under various APEC Leaders' and Ministers' initiatives. In addition to member economies' participation, the project requires a minimum of two APEC fora in planning and implementation. The project also requires involvement of external stakeholders such as APEC Business Advisory Council (ABAC). Multi-year projects still remain in the

pilot stages, to develop effective capability of member economies in the economic sector of international trade and no further projects will be funded until the completion of the pilot projects (APEC Secretariat, 2015).

Thus, Multi-year projects could be seen as a common effort of APEC members and external stakeholders towards APEC’s priority agenda. In other words, this is interpreted as an intention to enhance sustainability by inducing integral projects, which advances APEC’s economic cooperation as a long-term cooperation. Additionally, one of the five criteria¹ for assessing APEC project quality is presented as ‘sustainability’—this is also a device allowing the perpetuity of project effects.

Third, as for the method of education cooperation among APEC member economies, the form of research accounted for a high percentage. 68% (54 projects) of the projects have taken research component. Hence, research refers to research-oriented activities concerning a specific issue conducted by the means of seminar, symposium, survey, and others. The next largest portion was found to be development projects. 21% of all projects (17 projects) pertained activities such as web development, development of indices, and/or training programs. The least active area was found to be activities of practice made through personnel exchange, accounting for 11% (9 projects).

Table 2. Categorization of EDNET Projects according to Methods (Cooperation Method)

Methods	Project Contents	Number of Projects	Percentage
Research	Survey and Needs Analysis, Case Studies, Comparative Analysis, Report - Symposium, forum, conference, etc.	54	68%
Development	Development and Operation of Web Portal and Indicators - Training programs, learning materials, etc.	17	21%
Exchange	Training and exchange of scholars, students, administrators - Student camp, volunteer group dispatch, etc.	9	11%
Total		80	100%

Note: If more than two cooperation methods have been utilized in a project, each method has been counted towards the total. Thus, the original number of projects those have been reviewed is 67, while 13 projects have been counted more than twice according to its methods.

¹ The Quality Criteria for Assessing APEC Projects is presented in the Guidebook on APEC Projects (ver. 11) (Appendix E) published in 2015 by the APEC Secretariat.

Fourth, it was also noticeable that certain member economies were concentrated in the participation of APEC EDNET Projects. Research results showed that 42% (28 projects) of all projects have participation of six or more economies, as recommended by APEC. The rest did not meet the standard criteria or could not be confirmed.

Fifth, the result of projects analysis shows among 17 member economies those conducted EDNET projects, 15 member economies have carried out at least one or more projects. In percentage, 71% member economies have conducted EDNET projects. In particular, the majority of projects were concentrated in seven (33%) of those economies.

Table 3. Number of EDNET Projects Conducted per Member Economy

Member Economies	No. of Projects	Percentage	Member Economies	No. of Projects	Percentage
United States	14	18%	the Philippines	4	5%
Australia	9	12%	Singapore	4	5%
China	9	12%	Peru	2	2%
Thailand	9	12%	Chile	1	1%
Chinese Taipei	7	9%	Indonesia	1	1%
Japan	6	8%	Russia	1	1%
Korea	6	8%	Vietnam	1	1%
Malaysia	4	5%	Sub-total	14	16%
Sub-total	64	84%	Total *	78	100%

Note: If more than two or more member economies jointly proposed one project, each project has been counted towards the total. Thus, the original number of projects those have been reviewed is 67, while 13 projects have been counted more than twice according to its methods.²

2.2 Implications of Analysis of APEC EDNET Projects

The above are the characteristics of the projects led by the EDNET. Implications which should be considered for the enhancement of education cooperation are as follows.

First, it is necessary to derive a variety of education cooperation themes which reflect the needs of member economies. There are, of course, some major issues based on the paradigm of today's knowledge-based information society such as the utilization of ICT. However, upon development of diverse issues reflecting the needs of the member economies which

² Member economies are first listed in the largest number of projects and then followed APEC's alphabetical listing of member economy names

vary in political, social, cultural, and economic backgrounds, and/or upon agreement of universal issues which may draw them closer to the education cooperation, then there may be increased participation of member economies. To achieve this, the mechanism that connects member economies to Information on Needs is utmost necessity.

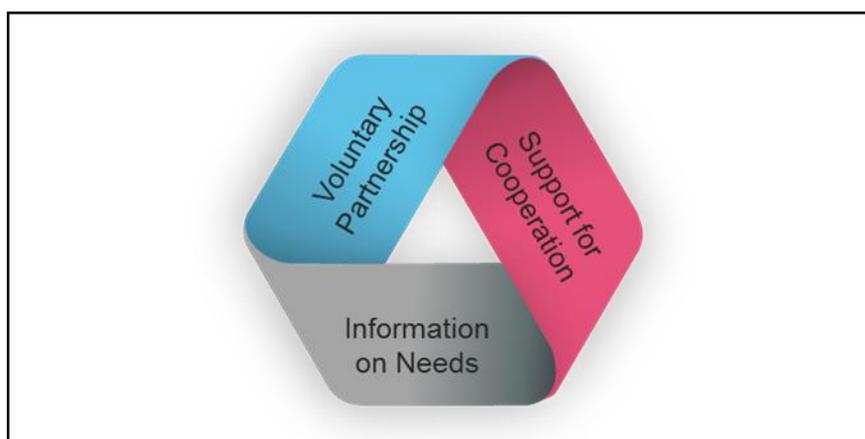
Second, a multifaceted support needs to be considered to enhance education cooperation. This is required for the current situation in which short-lived projects are cultivated and education cooperation is concentrated in only a small number of economies. At the 22nd APEC Leaders' Meeting held in China, three pillars were proposed for the seamless integration of APEC, namely: physical connectivity, institutional connectivity, and people-to-people connectivity. It can be said that the diversity of cooperation discussed at the Leaders' Meeting has already been also pursued for education cooperation. Nonetheless, institutional and technical support needs to be considered in order to induce member economies to take action for cooperation. The future actions suggested for member economies' participations in education cooperation are not only limited to take the initiative to bridge the gap of education in the genuine sense, but also to find the measure for structuring the governance that could discover issues and solutions in education cooperation and take further actions.

Third, Voluntary Partnership considering APEC's features should be built in order to embrace various kinds of voices in education cooperation. To proactively carry out the policy decisions of member economies' administrators, it is required that practitioners who have expertise in practice engage as well; it seems necessary for the academia including institutions, researchers and certainly the other stakeholders from business and private sectors to actively participate in the process. Furthermore, the involvement of teachers and students need to be taken into account when planning education cooperation.

3. ECP FRAMEWORK

Based on the features and tradition of EDNET education cooperation, the ECP model suggested by this study is displayed as the figure below.

Figure 1. ECP Model



This model is composed of three core elements: (1) Voluntary Partnership, (2) Information on Needs, and (3) Support for Cooperation.

3.1 Voluntary Partnership

Voluntary Partnership refers to the necessity to construct a cooperation governance to improve education cooperation, involving the endeavors to systemize the cooperation process on the basis of each economy's willingness according to APEC's tradition. It is possible that such volunteerism may be perceived as something 'lax,' but it may rather imply the inclusion of agents, objects, voices, and issues of a wide variety of areas for mutual benefit.

To this aim, while EDNET is a convention of administrators intended for the enhancement of policy partnership, additional strategy that could be recommended is establishment of a cooperation forum for education practitioners, such as APEC Education Dialogue. Through the APEC Education Dialogue, the working-level actors of education cooperation projects could expand practical cooperation opportunities and collaboratively pursue joint projects.

When considering the continuity of education cooperation within APEC, it is critical that the member economies which have accumulated different kinds of know-hows and know-whats take initiative with a sense of responsibility.

Two factors are required for the promotion of education cooperation from the governance aspect: first, education cooperation procedure must be clearly presented to the participants for easy access; second, this procedure must be widely promoted among education such as professionals, experts and specialists to encourage wider participation among stakeholders.

As a basic action to this end, we propose constructing the APEC Schools Consortium and establishing the APEC Education Dialogue.

3.1.1. APEC Schools Consortium

Each APEC member economy intends to promote the advancement of their respective education policy, and schools are the scenes for implementation of such policies. Public education policy is implemented through schools and the effectiveness of schools is the driving force behind education development. Thus, the opportunity given to the various and many schools in the APEC region to participate in the APEC activities is essential for expanding education cooperation in the region.

It should be noted that ‘schools’ in this context refer to not only schools from primary and secondary education level, but also higher education institutions. The foundation of APEC Schools can act as a catalyst for education cooperation in the APEC region because persons involved in schools are all stakeholders in education. For instance, teachers, students, parents, education administrators, principals, as well as education specialists are all members of schools.

Active exchange between the stakeholders of education will not only lead to practical exchange of ideas and human network, it would also result in the exchange and development of education policy in each member economy, which is closely related to vision of APEC, as well as education development in the APEC region as a whole. The current trend of expanding intellect through cooperation between schools and industries and developing vocational education further adds to the significance of APEC Schools Consortium.

Thus, reinforcing business and academic cooperation is an excellent way for ECP to gain ground in APEC by directly putting a linkage between industrial demands to the needs found in education cooperation. Public Private Partnership (PPP) will extend education cooperation between its actors within an economy, and result in increased understanding and diversity among member economies through cooperative education.

It is expected that each economy will designate schools in their economy as APEC Schools for those wishing to take part in APEC activities. After the member economies designate APEC Schools, then cooperation activities between the selected schools will also be stimulated. Especially, when selecting APEC Schools activities, long-term effects will be put into consideration to assure sustainability of activities. Teachers and students in APEC Schools will be called APEC teachers and APEC students, respectively, and will enjoy the opportunity to participate in APEC activities.

On the other hand, member economies may consider involvement of ABAC in forming APEC Schools Consortium. Since the aim of APEC Schools Consortium is to connect Public and Private for development of APEC, participation from private sector is vital in operation of the Consortium. The private sector may host and sponsor various activities of APEC Schools Consortium as their investment for education and future. Participation from diverse actors will increase positive interactions between the members, which in return, will result in

achieving major focus of APEC; human capital development as well as sustainable and inclusive quality growth.

3.1.2. APEC Education Dialogue

To carry out its mission, APEC currently operates different forms of dialogues between the public and private sectors. The Ad-hoc Public-Private Dialogue and the Industry Dialogues, both under the Committee on Trade and Investment (CTI), are two examples of efforts in connecting and bridging the public and private sectors. The proposals and agreement details of the dialogues are reported to the APEC Ministerial Meeting (AMM).

The ABAC, one of the advisory bodies of the Ministerial Meeting, can also be regarded as a dialogue forum with a similar function. The proposals of this Council are also reported annually to the AMM.

For voluntary participation, a regular space for cooperation as well as official and unofficial meetings between education practitioners is needed. The aforementioned APEC Schools should discuss issues and give shape to the structure of activities through meetings in order to expand opportunities to participate in cooperation activities.

To this end, annual or occasional conferences under voluntary regulations must be held. Under the suggested APEC Education Dialogue, diverse activities and issues of cooperation can be discussed. APEC Education Dialogue will provide opportunities for education practitioners of the region to participate in APEC cooperation activities, and will be a platform for them to discuss practical details of cooperation.

If official or unofficial dialogues are held focusing on APEC's education cooperation, a variety of educational communities will be formed, such as APEC teachers, APEC students, and APEC school-industry partnership, which would then create exponential opportunities for education cooperation. Although the activities will be based on voluntary participation, they should be systematically organized. Thus, establishment of a secretariat body seems to be necessary to assist administrative works such as hosting of APEC Education Dialogue, smooth sharing of information and management of APEC Education activities. In depth explanation and recommendation about establishment of such body will appear in Chapter 4.2.

3.2 Information on Needs

Information on Needs stresses the supportive function in operating educational cooperation. Through research and analysis of member economies' education status, environment, and relevant projects, additional opportunities and creative methods for cooperation may be found.

EDNET has thus far maintained its cooperation form by focusing on the issues connected with the priority tasks of AEMM and member economies' areas of interest. However, only certain economies have participated in cooperation with limited areas of interest. Thus, from

the perspective of the counterpart economies, they have been pursuing passive education cooperation, waiting for chances to participate.

However, for future education cooperation activities to be pursued under ECP, member economies' strong desire for education cooperation should be assertively found. The production of such information very well depicts the need for greater cooperation than in any other area, enabling the active facilitation of education cooperation within the APEC region.

Strategically, existing education indices developed and offered by international organizations such as OECD, UNESCO Institute for Statistics (UIS), and the World Bank can be utilized.

Eventually, however, it would be ideal to employ data developed through a joint research of the APEC member economies. Moreover, ad-hoc research meetings those allow member economies to explore cooperation opportunities could be implemented as another strategy. These are all measures for allowing member economies to take part in their own needs analysis, aiming at enhancing the effects of substantial education cooperation through EDNET.

3.2.1. Identifying Needs for Cooperation

To increase the effectiveness of education cooperation between each member economies, what must be preceded is making joint efforts for finding the respective needs through cooperative research.

Currently at APEC, the Policy Support Unit (PSU) conducts policy research related to agenda at the Leaders' Meeting or Senior Officials' meeting (SOM) level or higher and mainly develops cooperation agenda or standardizations necessary for the economic sector. However, there exist relatively few researches in the area of Economic & Technological Cooperation (ECOTECH), which includes education and human resource development. ECOTECH, as one of the two pillars of APEC should not be neglected in view of its importance. The sub-groups must recognize its importance and furthermore develop related subjects of interest with projects and research for actual implementation. This eventually indicates that there should be researches, projects and actions on education cooperation organized by EDNET.

It is true that the researches on education cooperation between economies have been taking place through EDNET projects; meanwhile, these projects are conducted under the already established education ministers' directions.

Therefore, it would be ideal to share information about education cooperation needs in order to secure the effectiveness of multilateral cooperation and also to establish long-term strategies to guarantee the continuity of actual cooperation.

3.2.2. Education Policy Research

Another aspect of strategy related with information on needs is the execution of education policy research. While education cooperation indicators concern information on needs,

education policy research analyzes forms, methods, scopes, objectives, and outcomes of cooperation as well as presents the direction for future cooperation.

Therefore, it would be ideal to identify member economies' needs in implementing ECPs to secure the effectiveness of multilateral cooperation and also to establish long-term strategies to guarantee the continuity of actual cooperation. To this end, careful cooperative research on the needs of cooperation should be carried out. Strategies may include researching through channels such as the aforementioned APEC Education Dialogue and ECP promotion organizations; furthermore, working with the PSU and the APEC Secretariat could be an important strategy for vitalizing the joint research on education cooperation needs in the region.

In fact, research on education policy within APEC HRDWG already exists. To review the role of APEC HRDWG, an Independent Assessment (IA) is performed every four years with the support from the APEC Secretariat and a third party analysis. This report, however, intends to strengthen the activities of the fora HRDWG as a whole, in the aspect of APEC economic cooperation to provide recommendations—it does not take into account individual economy, nor is it a policy research concerning the impact of education cooperation.

In order for the flexibility at the practice level and revolutionary features of APEC education cooperation to gain momentum, decisions in policy research are also important. On the occasion of motioning for ECP, functions of policy research must be enhanced to supplement the lack of EDNET's policy research. Meanwhile, the outcomes of such research can be shared during APEC's education cooperation dialogue or at conferences, seminars, etc., carried out by EDNET.

3.3 Support for Cooperation

APEC is an international body of economic cooperation aiming at realizing shared prosperity, by the means of narrowing the economic gap existing between developed and developing economies. Moreover, APEC strives to establish a Free Trade Area of the Asia-Pacific (FTAAP). The biggest issue, however, which has risen with the introduction of the 'knowledge-based economy', is the severe economic gap within the APEC region. As time passes, the economic gap is expected to be widened.

In order to achieve FTAAP, Free Trade Agreement (FTA) between economies must be taken as essential step in a diplomatic perspective; but the realization of such system requires evenly developed ICT and infrastructure among every economy. Thus, there remains a challenge in construction of preconditions to cooperation since APEC encompasses both developed and developing economies.

To explore the vision and strategies of future education with joint participation of APEC member economies, and to invigorate education cooperation between developed and developing economies, it is necessary to build a support system and process which can secure the sustainable cooperation. For this, we propose Consulting and a Web Portal as the supportive mechanisms for enhancing education cooperation.

3.3.1. Consulting

As the representative education cooperation measures between the member economies of APEC, consulting has been utilized with the following forms and methods: collection of education indices and joint research, exchange of personnel and institutions, sharing of ideas through forums, training programs and others.

If consulting is provided based on a certain economy's information on needs for the issue or task necessitating the need for improvement, results could be tangible. In other words, if the consultation is made based upon the economy's voluntary participation and needs, the probability of obtaining effective outcomes would positively increase.

The consulting team can be composed of the economy's experts—practitioners in primary and secondary education; professors and researchers in tertiary education or HRD area; administrators; and change agents. In addition, for effective consulting, it is necessary to first equip the consultants with professional knowledge and capacity for each area, develop a pool of consultants with sufficient and relevant experiences, and make efforts to maintain and sustain such experts' pool.

One way suggested for development of the experts' pool would be utilization of a web portal related to education consulting. Professional consultants with specialty in their backgrounds can be introduced in the following web portal created for ECPs. This would allow each economy to cooperate with consultants in an accessible and voluntary manner. The consulting team, then, can investigate and analyze each economy's up-to-date issues on education and find rationale for cooperation in a given area. The team may also establish specific strategies and share the consulting content, results, and promotional measures in annual conferences among other venues.

For instance, consultants can first jointly assist member economies in drafting an APEC project proposal submission as well as give guidance as the project progress, while member economies may take consultants' suggestions and incorporate consultants' recommendations into the projects to advance project outcome and effectiveness. Thus, professional consulting would contribute to increase project sustainability by comprehensive evaluation of project progress and results. Member economies may utilize professional consulting service to continuously improve and develop ECPs by exchanging ideas and thoughts via on and off-line.

3.3.1.1. Needs Analysis for Education Cooperation

Accurate needs analysis is the first step in economic cooperation consultation, and it determines the success or failure of the cooperation project. A great number of literatures continue to state the importance of needs analysis in the development and implementation of education training programs.

Over the past 30 years, tens of various needs analysis models have been proposed and applied, which is probably why there is so much confusion (Leigh, et al., 2000). Needs analysis is also

called as needs assessment, front-end analysis, and discrepancy analysis. However, it cannot be denied that the studies thus far have tried to provide a more accurate and comprehensive definition of the terms. Among the various needs analysis models, the gap model is most commonly and widely used in the education training sector.

Needs analysis for the consultation among APEC member economies is not simply a study on participants or potential participants carried out of curiosity. Needs analysis must be done in a scientific and objective manner for the success of the program. Data collection for needs analysis may be done in numerous ways, depending on the goals of needs analysis, types of program to be developed, targets of program, and the nature and situation of the participating groups.

In performing needs analysis, uses of existing data, interview, observation, group conference, survey, and critical incident analysis have been introduced. Such methods are useful in understanding the current situation. The utilization of communication process refers to the method in which information is acquired directly from the subjects, and can be categorized into the interactive method and detached method. The detached method consists of survey, critical incident analysis, Delphi method, etc., while the interactive method includes public hearings, group forums, Nominal Group Technique (NGT), Focus Group Interview (FGI), future scenario method, and interview of an important information source.

Lastly, the analytical process consists of job analysis, trend analysis, force field analysis, risk analysis, success mapping, cause and effect analysis, and fish-boning analysis.

3.3.2. Web Portal

Since the 21 APEC member economies are regionally distant from one another, being dispersed in several continents, it is neither realistically feasible nor effective to meet frequently, face-to-face, to discuss cooperation. To sustain various discussions and research, accumulate the outcomes, and to diffuse and publicize such information—while overcoming the restrictions of time and space—it is necessary to operate an online Web Portal to share information with stakeholders, real-time.

The Web Portal would be the website of governing and organizing body of ECPs, where the outcomes of various practitioners' cooperation for education are shared and distributed. For the portal's vitalization, a new kind of education cooperation and sharing system should be built, and the specific measures for their utilization should also be presented.

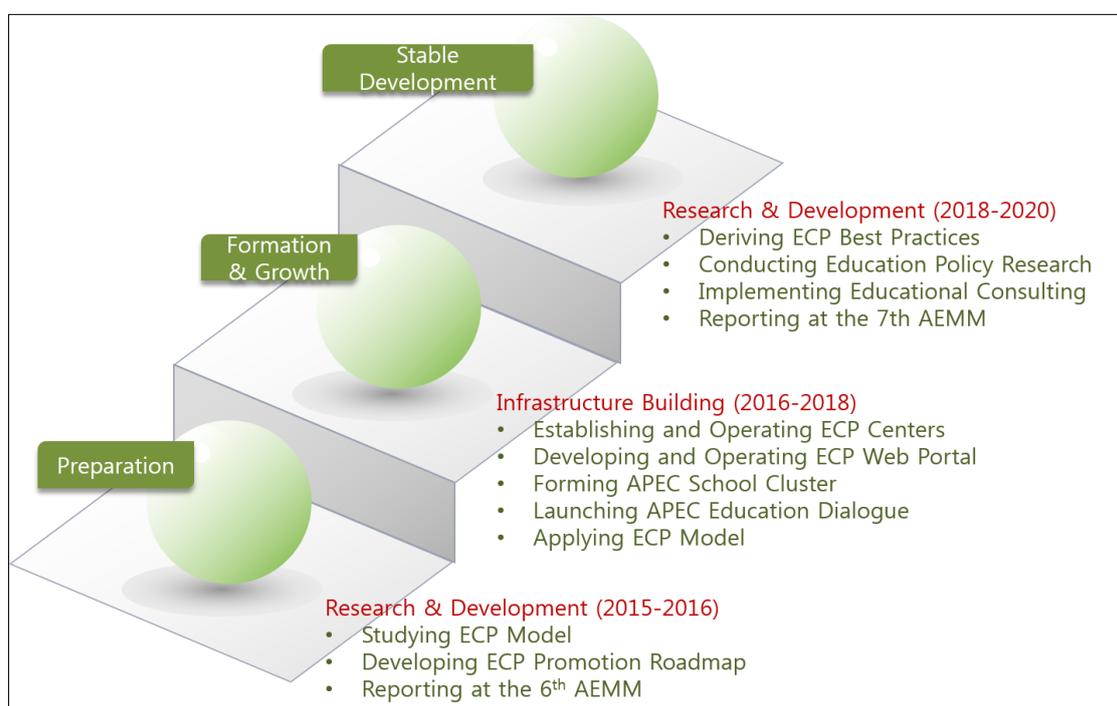
When providing information on the Web Portal, it should go beyond posting unilateral content—Social Network Service (SNS) shall be prepared to allow the economies' mutual communication through the portal. Since it is possible to share knowledge and information, communicate, and cooperate through SNS, exclusive Clusters for each economy's education cooperation of interest can be formed. Furthermore, the SNS environment allows accessibility to abundant resources which education personnel in the same Cluster can share instantly with one another for a safer type of cooperation. Through a more in-depth interaction, education personnel within the same Cluster can also feel a greater sense of intimacy and homogeneity, thus building deeper trust among themselves.

4. STRATEGIC RECOMMENDATIONS TO ADVANCE APEC EDUCATION COOPERATION

4.1 Establishment of 4-year plan: for EDNET Progress Report at AEMM

The implementation of APEC ECPs should be carried out according to the member economy's voluntary level of preparation and its progress, with a long-term strategy. The 4-year roadmap following the 6th AEMM is as follows.

Figure 2. 4-year Roadmap for ECP



4.1.1. Focus on the Systemization of APEC Schools Consortium, APEC Education Dialogue, and Web Portal (Stage 1)

At Stage 1 (2016–2018), APEC Schools Consortium among member economies will be formed and the APEC Education Dialogue of practitioners for cooperation will be launched. In other words, it is the stage of ‘Formation and growth of APEC ECPs’ by initiating an on-line cooperation forum through Web Portal development. It can be referred to as a period in which physical infrastructure and human network are created for the proliferation of the ECPs. Member economies will be invited to take a part in the progress upon their voluntary participation.

With active participation of member economies, APEC Schools Consortium will be a platform for ECPs. Moreover, based on member economies’ voluntary will to participate, APEC ECP Centers (*tentative name, hereafter referred as ECP Centers*) will be initiated to offer full support for education cooperation among member economies, carrying out research,

practice, assessment, reporting, and other functions. Further information about ECP Centers will be provided throughout this chapter.

4.1.2. Reinforcement of Research and Consulting (Stage 2)

In stage 2 (2018–2020), research on member economies' education cooperation needs and consulting for education cooperation are expected to begin with active participation and support of APEC member economies. It is the stage of 'Stable Development of APEC ECPs'.

Most importantly, practical examples applying APEC Education Cooperation Strategies would be produced in this period; outcomes will be produced according to the member economies' needs and the priority areas of AEMM, which are usually categorized into the following thematic areas such as Basic, Life-long, Higher Education, Language and Foreign Language Education, Mathematics, Science, Engineering, ICT, and various other subjects.

ECP Centers will be built on the basis of a framework and strategy for implementing cooperation tasks which the education sector is required to perform for APEC's mission. Therefore, ECP Centers will ultimately support innovative education cooperation outcomes beyond AEMM agenda and priority areas. ECP Centers would expand partnership with other fora within APEC, as well as external organizations for additional cooperative activities and projects. Thus, the ECP progress and outcomes of should be reported regularly at official APEC meetings such as annual HRDWG and EDNET meetings, which would be regarded as a major thematic dialogue for the AEMM.

4.2 Establishment of APEC ECP Centers

As the APEC Education Cooperation Strategy strongly recommends implementation of many activities for advanced education cooperation among member economies, nodal organizations are necessary to organize and guarantee success of cross border projects.

Through ECP Centers, connections among information, people, and organizations within APEC will be facilitated. In essence, establishment of ECP Centers is a strategy for EDNET and APEC member economies to create the foundation for effective education cooperation. With the participation of a large number of member economies, duplication is expected to be reduced while quality of cooperation is expected to be enhanced.

ECP Centers are to assist the realization of APEC Education Cooperation Strategies. The Centers will assist the formation and collaboration of voluntary consortiums in education cooperation areas by the stakeholders of APEC Schools Consortium—students, teachers, professors, researchers, government administrators, private parties, and other interested participants in each economy.

Specifically, ECP Centers will provide support for operations of the APEC Schools Consortium, APEC Education Dialogue, Education Policy Research, Consulting, Web Portal, and other activities to assist and advance practical education cooperation in Asia-Pacific

region. It is imperative that ECP Centers are to be established for the success and advancement of APEC Education Cooperation Strategies.

Then, the relationship between EDNET and ECP Centers could be defined as follows: while EDNET is the upper-level decision-making body among member economies' education officials, ECP Centers are characterized as its sub-organization for education stakeholders' education cooperation.

APEC member economies may establish ECP Centers on the basis of APEC's tradition and principle of voluntary participation. ECP Centers will need to be established in an open-ended manner by interested economies in the areas or programs of their preferences. The Republic of Korea will continue to make its share of contribution for the establishment and/or operation of ECP Centers in cooperation with other economies.

4.2.1. Roles of APEC ECP Centers

ECP Centers will be administrative organizations built for the successful implementation of APEC Education Cooperation Strategies in member economies. The Centers will conduct various activities to strengthen long-term and effective education cooperation within the APEC region by assisting stakeholders of education sector in their endeavors to contribute to APEC's vision. ECP Centers will particularly focus on the roles of promoting, coordinating, and supporting ECP activities.

4.2.1.1. Promotion

Promotional activities refer to removing barriers in APEC education cooperation and reinforcing member economies' motivation to participate in APEC education cooperation opportunities. To correspond to the role, ECP Centers would provide sufficient accessibility to ECPs for economies, which could not take part in APEC education cooperation due to lack of resources with the following strategies:

- **Arranging Opportunities for Cooperation:** By hosting the APEC Education Dialogue and other related events, ECP Centers would contribute to enabling member economies to seize opportunities related to member economies' education cooperation needs.
- **Providing Easy Accessibility:** Through usage of the Cooperation Web Portal, stakeholders and members from each economy can easily publicize their cooperation activities to other members and find co-sponsors, as well as project participants.
- **Enhancing Motivation to Participate:** Project participation can be boosted by continuous sharing of information among member economies participating in education cooperation through Web Portal and APEC Education Dialogue; member economies may contribute to sharing of information by providing relevant education cooperation opportunities to the ECP Centers, where information will be accumulated to motivate diverse stakeholders to participate in ECP activities.

4.2.1.2. Coordination

ECP Centers are responsible for coordinating the implementation of education cooperation among participants.

- **Provision of Information:** The following information will be collected by ECP Centers and provided to member economies; 1) Output of education information for the facilitation of information, such as *APEC Education at a Glance*, information on needs, and education development plans for each economy and, 2) Provision of information on the process and results as well as contact points for education cooperation projects in process.
- **Definition of Terms:** Definitions of Terminologies used in Education Cooperation will be provided so as to guarantee unanimous understanding among the persons involved in APEC education cooperation.
- **Coordination of Resources:** Each ECP Center in member economies will be a facilitator for ECPs in APEC by coordinating and utilizing existing resources. For instance, the Centers will introduce and match APEC Schools to other institutions and members of the APEC Schools Consortium to trigger cooperative educational activities.
- **Development of Human Network:** ECP Centers are expected to be central organizations in building human network connections among the participants of ECPs, ranging from education consultants, international cooperation specialists, experts, professional researchers in relevant areas. By developing the human network connections, the Centers will contribute in coordinating key contact points from member economies for better implementation of ECPs.

4.2.1.3. Support

ECP Centers will provide support for funding and education services for the continuous expansion and development of education cooperation. Nevertheless, unlimited financial support and assistance for every ECP would be a difficult challenge. Whereas, financial support will be made available to relevant ECP activities within the amount of voluntarily raised fund by the member economies. Assistance for education services will be focused on capacity building and acquisition of necessary information through training programs and consulting. Specifically, assistance will be provided in the following areas:

- **Funding:** 1) Financial support for voluntary education cooperation activities carried out by teachers, university students, government personnel, experts, and etc., in APEC member economies, 2) Economic support to assist the effective activities of education consultants, and 3) Preparation of foundation, which will be an autonomous network for education personnels from private, public, and academic sectors from member economies

- Advertising: 1) Introduction to the activities of ECP Centers, 2) Promotion of currently on-going bilateral or multilateral ECPs among member economies, 3) Introduction to up-to-date activities of professional consultants, and 4) Planning on-line activities such as member registration to the Web Portal, and 5) Publishing Newsletters and other Publications such as reports and other documents to present major activities and their outcomes
- Consulting: 1) Development of an expert network for consulting by organizing an international experts' pool for corresponding areas of education, 2) Drafting of an Education Report of member economies for policy consulting, 3) Provision of an information sharing platform between consultants and member economies, and 4) Coordination of consulting services to facilitate international exchange and education cooperation activities among APEC Schools Consortium. To this aim, an exclusive SNS will be provided through the Web Portal
- Training: 1) Active Responses to the needs of capacity building for international education cooperation, 2) Capacity building programs for education practitioners in implementing ECPs, 3) Sharing of the Best Practices in ECPs, and 4) Facilitation for research and creative knowledge of education experts within APEC

4.2.1.4. Research & Feedback

ECP Centers will carry out studies for education cooperation, and provide feedback related to the studies. The details are as follows:

- (1) Brainstorm and share the vision for education cooperation, in which advanced and developing economies within APEC can participate and share practical strategies such as future education models and other recommendations
- (2) Form a dialogue on HRD area, which is interlinked with AELM and AEMM agenda
- (3) Seek international education cooperation activities that are participant-oriented for the development of creative global capacity of university students and youths of APEC economies, which would have implications when activities are accumulated

4.3 Operation Measures for APEC Schools Consortium

The purpose of establishing APEC Schools Consortium is to expand APEC education stakeholders' accessibility to and participation in ECPs. APEC Schools are where everyone related with education—teachers, students, administrator, parents, researchers, community educators—may gather, and the cooperation among APEC Schools will lead naturally to expansion of cross border cooperation and exchange for mutual benefit.

So far, it has been difficult for education practitioners to directly access cooperation projects due to the limited official participation route within EDNET; however, if APEC Schools are designated for each member economy, then they will be able to easily take part in

international education activities by participating in exchanges between schools. APEC Schools do not only refer to K-12 education institutions, but encompasses all organizations involved in educational activities from preschools, primary and secondary schools, vocational schools, higher education institutions and other affiliated organizations. Below is the tentative design of APEC Schools' activities.

- Selection: Each member economy can designate schools intending to participate in international education cooperation through Ministry of Education. The levels of schools range from K-12, as well as higher education institutions and research centers. In addition, to ensure participation of the private sector, business persons and enterprises may be recommended by ABAC to take part in the Consortium.

Based on the principle of voluntariness, it is important to select schools which have much interest in international education cooperation within APEC as well as strong commitment to sustainable education cooperation.

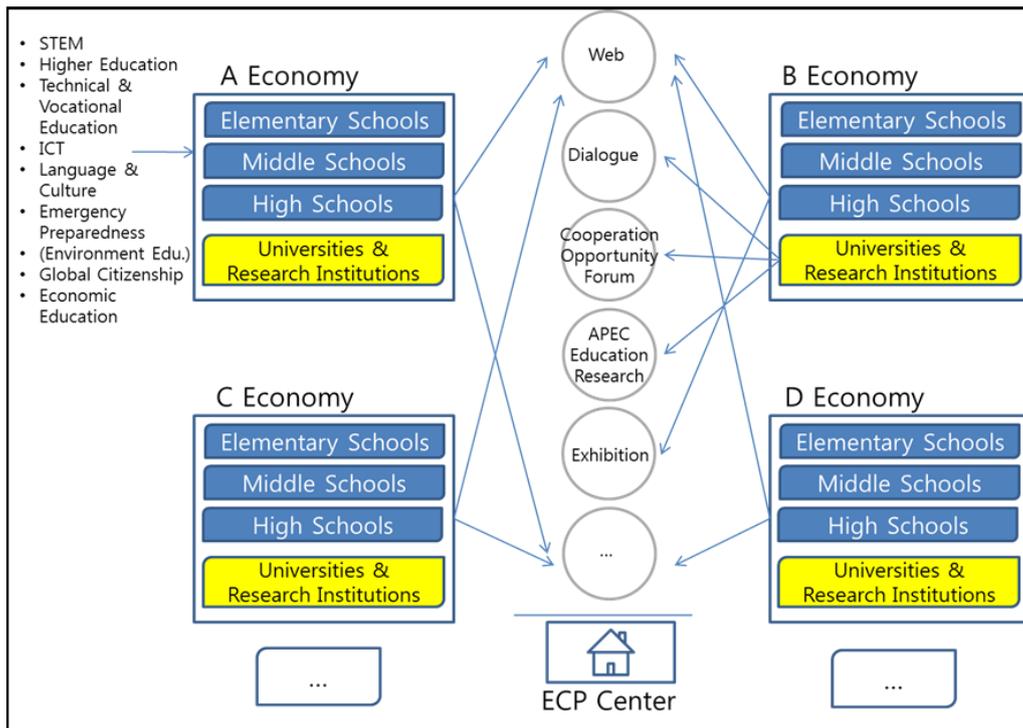
- Activities: Since participation is voluntary, various activities can be expected, with the three below as being major ones.
 - 1) Project: Two or more schools can cooperate through an implementation of a project in order to achieve a certain objective. The specific outcomes are to be shared to enhance the international level of learning among participants.
 - 2) Personnel Exchange: Participants can visit economies other than their own to broaden their understanding and knowledge in other economies' overall education system, curriculum, and other fields of interests which will allow them to find new opportunities for cooperation.
 - 3) Knowledge Sharing: Participants can share knowledge and information about member economies' education through meetings, seminars, conferences, etc., to advance quality of participating economies' education policy and broaden scope of research.
- Form: In the APEC Schools Consortium, sub-groups called APEC Schools Clusters can be formed according to areas of education and group interests to pursue various and unique education cooperation for mutual benefits. Each Cluster may organize cooperative activities and events such as collaborative research, students and teachers exchange, conference, seminar, forum and many other diverse programs on the basis of voluntary participation.

Sample APEC Schools Clusters and their activities, as well as their interactions and relationship to the ECP Center are as stated below:

- 1) Science, Technology, Engineering and Mathematics (STEM) Cluster
- 2) Higher Education Cluster
- 3) Technical and Vocational Education Training (TVET) Cluster
- 4) Information, Communication and Technology (ICT) Cluster

- 5) Language and Cultural Education Cluster
- 6) Environment and Emergency Preparedness Cluster
- 7) Global Citizenship Education Cluster
- 8) Economic Education Cluster

Figure 3. Cooperation between ECP Center and APEC Schools Consortium



4.4 Operation Measures for APEC Education Dialogue

The APEC Education Dialogue is a venue of discussion for education practitioners within APEC; it is a meeting where the knowledge accumulated from the APEC School activities are shared and new international education cooperation opportunities are sought. Through the APEC Education Dialogue, not only will the outcomes of the APEC School activities be accumulated but also they will be discussed for improvement. Therefore, when designing APEC Education Dialogue, it must consider operation measures for participants, form, and theme.

- **Participants:** Participants include all educators who took part in the activities of APEC Schools Consortium and they will be able to share their own know-how in education cooperation in a free manner.

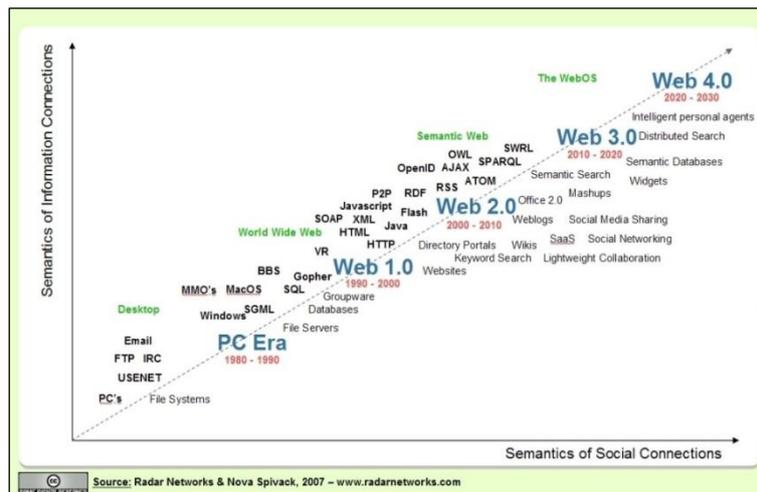
- Form: An official meeting will be held annually, prior to or after the HRDWG meeting; unofficial meetings can be held according to clusters formed within APEC Schools Consortium.
- Theme: Themes of APEC Schools Consortium Cluster Meetings can be autonomously decided by participants. For the official meeting, each Cluster may present overall activity outcomes and share issues pertaining to new opportunities for education cooperation.
- Support: Each leader of the APEC School Cluster can decide the date, form, venue, etc., of its meetings after consultation with relevant ECP Centers and inform the participants accordingly.

4.5 Operation Measures for Web Portal

4.5.1. Measures for Building Web Portal

The Web Portal system must be appropriately structured to promote effective communication between APEC member economies. As shown in the figure below, the web environment has recently been transforming from the system led by information providers' unilateral information provision to a system in which prosumers consumes and produces information to be shared. Henceforth, web portal system must be upgraded as the major function of the web portal is sharing. In the case of APEC, the initial Web format was that of a website-oriented system. However, APEC must now put importance on an interactive on-line foundation through which parties can participate, share and open up.

Figure 4. Transformation in the Web Portal System



Source: Radar Networks & Nova Spivack, 2007

4.5.1.1. Development of Wiki

Wiki utilizes collective intelligence, one of web 2.0's characteristics, to accumulate knowledge on cooperative projects. The information related to cooperation can be uploaded by not only consultants and experts, but also beneficiaries. In essence, it is a collaborative encyclopedia. The uploaded information on wiki is immediately published, but the final published text will be the version edited and revised by a separate group of experts.

Among such data, information worth sharing as well as information acquired through the consultation process must be linked to a database. Also, wiki should be linked with the search engines like Google, Yahoo, YouTube, and Wikipedia so that information concerning the cooperation project can be acquired at a single click.

In order to link all information into a database, a classification scheme must be set. For the long-term and continuous utilization of this scheme, a common information system must be established among member economies. For instance, when information regarding education is presented in a single database, a classification scheme and maintenance plan must be established to organize information database such as to create new system and to delete the existing system.

Another classification scheme is tagging. When information creators upload data, the data will be 'tagged' with related key words and this act automatically creates a classification scheme. When certain data are collected and tagged by numerous users, it enables easy data collection as well as data classification.

4.5.2. Operation Strategies for the Web Portal

For smooth and instant information sharing and communication of persons relevant to APEC Schools Consortium such as teachers, students, education specialists, and administrators, the operation of the Web Portal is proposed as follows.

First, APEC Schools Consortium is to act as the storage hub of where the education-related information prepared by the economy's education-related personnel is shared and connected. When information is transferred, it should be in the form of an equal, dispersed, and connected system rather than a hierarchical, centralized one. In other words, all information and education-related content should be made available and searched on the Web Portal. This means that information of need should be stored and distributed at a website in a way that could be easily found and utilized.

Also, by providing meta-information related to education, the Web Portal should support education personnel to become prosumers who actively engage in reproducing and making use of the information on the website. The SNS functions, in particular, should be strengthened to allow exclusive communication among APEC Schools' contact points, to offer a communication sphere where a greater sense of trust exists. In addition, information sharing and distribution should be made available immediately.

Second, a diagnostic tool should be established to frequently analyze education personnel's needs through the information loaded on the Web Portal. It is necessary to add features such

as Facebook and blogs to enable Web Portal users to search, save, and utilize education information according to their needs.

Third, the incentives for prosumers' creation of value which is offered to users should be systematically prepared and provided. The users' rights to user-created knowledge need to be guaranteed; at the same time, such knowledge should lead to the development of various applications utilizing existing content, through education information sharing and development of a distribution system Application Programming Interface (API).

Fourth, through standardization, connectivity with relevant sites run by other international organizations should be expanded. The contents to be loaded on education information sharing and distributing system need to be standardized, to allow sharing and/or distribution anywhere, whether it be blogs or user-tailored websites of each economy's private businesses. Thus, expansion must be secured for the connection with other sites through API development and sharing, following web standards, etc. To this aim, API could be jointly developed with the participation of relevant education institutions and private businesses or efforts could be made between institutions to establish API standards.

4.6 Performance Management for Information Sharing

The strategies for effective implementation of ECP Centers' activities have been covered so far. Finally, performance management will be illustrated to construct a series of results chain to show how ECP performance strategies are connected to outputs, outcomes, and APEC goals. These performance management strategies may function as the mechanism or incentives and turn APEC education cooperation into a venue of festivity. Further, they may become the driving force behind sustained and stable APEC education cooperation.

4.6.1. APEC Schools Consortium Activity Report

First, as APEC Schools Consortium is composed of multiple APEC Schools Clusters, each APEC Schools Cluster will draft an annual report of performance outcomes and submit the draft to the relevant ECP Centers. Then, these reports will be collected and analyzed by the Centers' research team. Upon the analysis, the results of APEC Schools Consortium activity will be submitted to EDNET. Then, the report would be presented at AEMM, which is held in every four years.

The important mechanism which encourages continuous activities of each economy's APEC Schools Cluster is voluntary participation. Thus, upon voluntary participation and submission of activity report, the Ministers would recognize cooperative activities taking place in their economies.

4.6.2. Issuance of APEC Education Travel Card to Facilitate Mobility

Mobility assurance for APEC education cooperation is also a vital task in the aspect of ECP performance management. A mechanism for such purpose could be proposed as APEC Education Travel Card (AETC).

In parallel with AETC, the APEC Business Travel Card (ABTC) is intended to facilitate mobility of business personnel of APEC economies. The ABTC, under each member economy's authorization, exempts designated business personnel from going through immigration processes to ensure enhanced mobility for business people. The actual size of ABTC is a business card, but what it symbolizes is something much greater.

If such system is made available to facilitate cross-border education or cooperation among educators, it will become an integral mechanism for expanding education cooperation. AETC will of course not be available to every person or student; distinguished schools and education-related personnel will be able to acquire one through APEC Schools' activities. Through this process, APEC member economies will foster mobility among champion practitioners as well as specialists who lead APEC education cooperation.

4.6.3. Conferring of the Best APEC Schools Award and Outstanding Performer Award

To celebrate APEC education cooperation as a festival, it is necessary to annually award the best APEC Schools and outstanding performers. In addition to AETC, another way of instilling motivation and acknowledgement into the standardized 'education cooperation' is the presentation of awards.

For example, APEC's Policy Partnership on Science, Technology and Innovation (PPSTI) organizes and awards APEC Science Prize for Innovation, Research and Education (ASPIRE). Annually, among the scientists nominated by each member economy, one person is selected and receives the award from the host economy of the year. Wiley and Elsevier which publish world-renowned academic journals participate in this award as major sponsors.

Likewise, if champion education institutions and practitioners of APEC's education cooperation could be awarded, this will not only become a festival, but also an opportunity for education cooperation to be recognized as an honorary activity for member economies.

Especially, if the award and prize are given at the ministerial level, it will be a significant event for the awardees. Also, hosting economies may have a chance to recognize the Best Schools and education specialists of the region with honorary prize. Also, as in the case of ASPIRE, fundraising strategies could be considered by allowing the private sector to take part as sponsors.

4.6.4. Operation of the APEC Education Cooperation Hall of Fame

Operating APEC Education Cooperation Hall of Fame to acknowledge APEC education cooperation champions such as practitioners and other stakeholders is also strongly recommended. The name 'Hall of Fame' refers to the system in that members can receive the highest recognition as education cooperation experts.

The expected persons to be recognized by APEC Education Cooperation Hall of Fame are professionals with a variety of experiences in education cooperation, who can participate in various consulting activities in regards to APEC ECPs.

4.6.5. Holding the APEC Education Festival

The strategies for implementing and managing APEC education cooperation thus far may be confined to a relatively small number of people. Thus, to invite many more stakeholders, APEC Education Festival could be held. This can be held during the AEMM period. Similar to Expo, schools and other stakeholders from APEC School Clusters can dynamically exchange practical experiences. Such event will eventually be intertwined with education policies and to serve as a venue for mutual education development of the region.

For example, during the 5th AEMM held in Gyeongju, Republic of Korea, the APEC Education Festival was held in an exhibition hall located close to the Ministerial Meeting venue. The Festival consisted of special exhibitions and forums. The host economy of the AEMM could arrange the festival for the presentation and exhibition of the results of the education cooperation project, carried out under EDNET and within the ECP framework.

4.6.6. Raising of the APEC ECP Fund

For the performance management of APEC education cooperation, the financial aspect cannot be overlooked. The various funding sources of international organizations can be searched for; as for awards, support from a certain organization could be requested. For instance, in the case of ASPIRE, the award is sponsored by external organizations called Wiley and Elsevier.

Also, seed money can be raised by member economies so that the practice of developing voluntary contribution could be developed. The voluntary contribution to ECP fund is based on the tradition and characteristics of APEC. If continuously practiced, it will become a long-term fundraising strategy.

The above strategies are suggested for performance management of ECP Centers. ECP, the materialization of the Gyeongju Initiative, makes the following strategies for its performance management: (1) Voluntary cooperation by joint participation of private, public, and academic sectors, (2) Dynamic cooperation through the partnership of policies and practices, (3) Sustainable long-term cooperation among member economies, and (4) Reciprocal cooperation by mutual recognition and assistance of participants.

5. CONCLUSION

The APEC Education Cooperation Strategies is a report prepared for EDNET which encompasses EDNET's endeavors—EDNET has been making efforts to raise education cooperation within APEC to a new level, quantitatively and qualitatively. We believe that if the model and strategies presented here are combined with member economies' experiences and wisdom, the importance of the education area will be recognized for development of APEC. Moreover, it will greatly contribute to member economies' economic development and prosperity. The ECP is especially expected to yield direct effects stated below:

- **Expansion of Opportunities:** The Center's activities will make contributions toward increasing cooperation opportunities in education sector; in particular, chances for accessibility will be offered to member economies which have been unable to actively participate due to the constraints of resources or information thus far.
- **Efficiencies of Cooperation Process:** By overcoming hindrances to education cooperation—such as asymmetric information and imbalance of resources—through mutual understanding, conversation, and active sharing of information, the cooperation process will become efficient.
- **Accumulation and Sharing of Cooperation Outcomes:** Education cooperation thus far has been mostly short-term exchange, consisting of single events; a venue for sharing various cooperation outcomes will be created as a foundation for continuous and long-term education cooperation.
- **Promotion of Education Cooperation Suitable for APEC's Objective:** Education cooperation which can contribute to APEC's objectives and vision will be reinforced, further emphasizing the relationship between economic prosperity and education.

The activities of ECP Centers are expected to bring about not only the abovementioned direct effects but also, in the long term, the invigoration of education cooperation's contributing role toward APEC's vision.

- **Increase of Education Mobility:** Through planning, implementation and sharing results of high-quality ECPs, the movement of information, persons, and organizations is to be enhanced.
- **Liberalization of Education Services:** By facilitating the free movement of higher education and vocational education services between economies, the basis of educational prosperity within the APEC region should be reinforced.
- **Development of Human Capital:** The facilitation of activities such as industry-academic cooperation, exchange among education stakeholders, technology transfer, capacity building, and expansion of programs will enable human resources development and collection of related information.

- **Improvement of the Education System:** It is expected that along with international education cooperation, sharing of education policy information, comparative research, and other activities among the member economies as references for improvement of the member economies' education systems will also be expanded.

Education cooperation has not received much attention in APEC despite its potential. Although this may be true, APEC Education Cooperation Strategies have identified education sector's contribution to APEC.

As a result, consensus has been established among member economies to put forth their utmost efforts on education development due to its significance. It must be emphasized that education issues are important for fostering future human resources, which would promote greater accumulation of knowledge and innovation in sectors beyond education.

Member economies must prioritize education with investment of sufficient and high-quality resources. In this perspective, education cooperation is a key means to develop not only the education sector, but also to promote overall areas and activities of APEC. Interest and support for education cooperation, therefore, must not be spared for the prosperity of APEC.

Given the above conditions, ECP will be the gateway to develop future human resources for APEC by providing opportunities to discover talents and ability within individuals in order to cooperatively solve problems, share good examples of ECPs through APEC Education Dialogue between APEC Schools Consortium members. All these efforts would trigger exchange of innovative ideas, sharing of resources for Cross Border Education (CBE), and build up common understanding between member economies through education. Thus, the ultimate aim of ECP is to contribute to the key goals of APEC; economic development and co-prosperity.

ECP promotes member economies' education policy development. In fact, it ultimately is a major mechanism which strongly facilitates APEC region's joint cooperation. In contrast with other working groups in APEC, HRD is a mutual matter of interest for member economies in developing future human resources in all areas including the primary industries such as agriculture and fishery as well as the secondary and tertiary industries such as communication, energy, safety, transportation, public health, and many others.

Thus, implementation of ECP is critical for promotion of the education and HRD. In addition, it also is a vital activity essential for the advancement of other fora and working groups in APEC. The future agenda of education cooperation requires the interest of policymakers and is summarized as the following.

5.1 Closing the Education Gap

A key goal of APEC is to achieve co-prosperity through economic cooperation, and a key value is to close the economic gap as much as possible within the Asia-Pacific region. Internationally, the education gap is widening between the developed and developing

economies. In like manner, the main problem remains to growing education gap between the rich and the poor. These phenomenon shows that education gap directly correlates to income gap. This is a vicious circle since when education gap widens in accordance with income gap, it leads to the acceleration of the widening of economic gap.

Cooperation is an important countermeasure to this phenomenon, and all parties must work to prevent recreation of education gap for the sake of co-prosperity within APEC. In the midst of rapid technology development and intensified global competition, it must be emphasized that not only basic literacy such as reading, writing, and math should be considered, but more serious responses should be made for digital literacy and global literacy.

5.2 Global Skills Development

Cooperation is premised on global skill development. If cooperation is pursued without being equipped with global skills, it will be difficult to wisely overcome the various obstacles in the process because cooperation requires various skills such as communication skills, conflict resolution skills, negotiation skills, ability to understand diversity, and tolerance. The global skills issues in terms of cooperation are not only about developing individual ability to communicate.

It also embodies cultural competency and global citizenship. Cultural competency is the ability to understand and embrace diversity. This is not only limited to interest and ability to understand cultural differences, but also includes the ability to embrace cultural differences with no bias, subjective opinions and capacity to convey constructive feedback.

The importance of global citizenship cannot be emphasized enough. It is the most basic element which composes the foundation of education cooperation. Global citizenship embodies a strong interest and responsibility for international issues such as inequality of education, gender and others, as well as climate change and the expansion of the economic gap, and also entails the acknowledgment that the global issues cannot be solved by a single economy.

The stakeholders in education, especially those at the frontline of education must recognize that global issues are common tasks for all member economies. It should be highlighted that global issues should not depend on one heroic person, organization, or economy's effort, but require collaborative problem solving skills from community level and common efforts from multilateral actors.

For promotion of international education cooperation, each member economy must equip their teachers and students, as well as stakeholders of education with aforementioned global skills. Hence, to promote genuine ECPs in the APEC region, more interests must be directed towards in advancing the global skills development in each economy.

5.3 Facilitation of Industry-Academic Cooperation

The 21st century allows the next generation of member economies in the APEC region to surpass individual economy's boundaries of life and occupation to enter the global arena. Therefore, the more APEC pursues economic integration within the region, the role and significance of 'education' will be greater. Moreover, it is also evident that the member nations need to be aware of the mutual responsibility, which is to prepare and help our next generation to be equipped of high quality labor skills.

At the symposium held in preparation for the previous 5th AEMM, voices of introspection were presented. The point was that despite the fact that more than half of the top 500 global enterprises invest in developing economies' education, such endeavors do not often have collective influences due to the piecemeal and disjointed efforts. Thus, it is a critical challenge for these enterprises to secure a strategic approach, taking into account cohesiveness of the strategy to local education.

As an example of industry-academic cooperation, students could obtain overseas internships under the strategic umbrella of industry-academic cooperation, and also participate in the competitions held by companies in the region at times to exert their competence. In addition, companies could discover outstanding students with talents sooner, which would in turn provide companies opportunities to acquire students' ideas.

This is not limited to a few global companies based in developed economies—global enterprises operated by developing economies may also enjoy this opportunity. Above all, the first step will be to form mutual partnerships among various stakeholders. For instance, partnership will be created between members of the pertaining industries, experts, institutions dealing with capacity building of young adults and specialists, educational institutions including schools, technology development centers, museums, and public libraries by opening up the APEC Education Cooperation Dialogue.

In APEC there already exists not only the APEC Business Advisory Council (ABAC), but also within HRDWG, such bodies as EDNET, LSPN and CBN exist, which respectively focuses on Education, Labor and Social Protection, Capacity building areas. Thus, if ECP Centers could effectively utilize the aforementioned foras and organizations, a sufficient foundation for industry-academic research would be prepared.

5.4 The Design of Future Education

Rapid development of technology has replaced simple labor of humans, enhancing productivity and efficiency, while increasing the demand for high-level cognitive activities. In other hand, these can create new knowledge along with the societal changes of increased uncertainty and lower predictability in addition to lower values of human labor which necessitates true humanitarian values such as sensibility.

Such changes in society and economic structure call for a fundamental and systemic transformation of the education system as well. The future education does not merely target the simple memorization of knowledge and ability to perform repetitive tasks, but aims to

cultivate individual talents with capacities required in the 21st century. Currently, the 21st century skills in education are gaining great interest; among them, commonly known skills are critical thinking, problem-solving skills, communication ability, and capacity to cooperate with others. Indeed, discussions on the future education system to actualize the vision are currently being actively pursued at various degrees.

It is necessary to re-establish the educational objective of the 21st century which focuses on cultivating creative individual talents and transformation in the educational system for its promotion. As the basis for the new educational system moves forward to meet the needs of the knowledge-based information society, a repository for education resources that will allow easy access and sharing among students, teachers, and other relevant personnel within APEC is deemed necessary. Therefore, cooperation toward Open Educational Resources (OER) is required as an effort to share digital education resources possessed by member economies with public.

An analysis on similar studies can be best summarized as the representative cases which involve the newly merging convergence of education: OER, Massive Open Online Course (MOOC), Blended Learning, educational video games, Flipped Classrooms, and Collaborative virtual environments.

It is expected that future education communities will adopt a variety of technologies including cloud computing, learning analytics, game-based learning, tailored learning environment, open contents, and mobile learning. On the other hand, there are concerns for the adverse effects of using digital devices. Among the concerns, addiction, the difficulty in utilizing digital devices, lack of human creativity and imagination, privacy-related issues and many other issues have been namely discussed.

Thus, future education should recognize and apply newly emerging educational methods, technologies, pedagogy, and expression and provide education regarding the correct use of the social media. In the midst of innovative age with emerging information and technology, it is important to recognize diversity in educational curriculum and the 21st century skills. It is now time to have open and in-depth discussions among APEC's education personnel in order to actualize optimistic possibility on education cooperation by preparing realistic strategies for upcoming future.

REFERENCES

- APEC Project Database. (2016). *APEC Projects proposal, monitoring reports, completion reports and other documents* [Data file]. Available at: <https://aimp2.apec.org/sites/PDB/default.aspx>.
- APEC Secretariat (2015). Guidebook on APEC Projects: Edition 11, available at: <http://www.apec.org/Projects/Forms-and-Resources.aspx>.
- Leigh, D., Watkins, R., Platt, W., Kaufman, R. (2000). Alternative Models of Needs Assessment: Selecting the Right One for Your Organization. *Human Resource Development Quarterly* 11(1), 87-93.
- Timeline of the Past, Present and future of the Web. (2007). [Graph illustration of Evolution of the Web]. *How the WebOS Evolves?* Retrieved from http://novaspivack.typepad.com/nova_spivacks_weblog/2007/02/steps_towards_a.html.

APPENDIX

List of APEC EDNET Projects Conducted between 2000-2015

No.	Years	Projects	Proposing Economy	Thematic Area	Project Contents
1	1997-2010	APEC Education Hubs	SIN	Higher Education	Invitation of College Students from Developing Economies to Study Abroad
2	1997-2005	University Mobility & Asia & the Pacific (UMAP)	AUS	Higher Education	Development of Framework on Credit and Conference
3	2000-2003	APEC Cyber Education Network (ACEN)	ROK	ICT	Operation of Web Portal (Web-zine), Exchange (Volunteers)
4	2001	The Seminar on the Best Practices for Professional Development of Vocational Teachers Among APEC Economies	THA	Vocational Education	Seminar, Symposium
5	2001-2003	The Use of Information Technology in a Learning Society	SIN	ICT	Short-term Training
6	2001-2003	The Use of Information Technology in a Learning Society—APEC Educators Exchange Program	SIN	ICT	Education Specialists Exchange
7	2001-2003	APEC Links-connecting educators through technology	SIN	ICT	Operation of Web Portal
8	2002-2003	APEC Sister School Networking	THA	ICT	Operation of Web Portal, Forum, Camp
9	2002-2003	Best Practices for Empowering Women's Learning Capacity through Lifelong Education	THA	ICT	Symposium (Case Study)
10	2002-2003	We are APEC On-line	US	ICT	Web Development (Information)
11	2002-2003	APEC Cyber School and 2003 Networked Collaborative Learning Project	CT	ICT	Provision of Collaborative Learning for K-12
12	2002-2003	Best Practice on Human Resource Capacity Building in Science and	PH	Mathematics and Science/Teacher	Forum (Case Study)

		Mathematics		Quality	
13	2002- (on-going)	The APEC Knowledge Bank Library Wiki	US	ICT	Web Portal Operation (Information)
14	2003	Seminar on Best Practices and Innovations in the Teaching and learning of Science and Mathematics at the Secondary School Level	MAS	Mathematics and Science	Seminar (Information)
15	2003-2005	APEC e-Learning Strategic Plan Development	CT	ICT	Development (e-Learning Policy Development Frame and Index)
16	2003-2004	Improving the Institute Capacity of Higher Education under Globalization: Joint Schools among APEC	PRC	Higher Education	Survey, Seminar
17	2003-2005	Best Practice Governance Education Policy and Service Delivery	AUS	System Reformation	Case Study, Publication of Report
18	2003- (on-going)	APEC Learning Community for Shared Prosperity	ROK	ICT	Conference, Exchange, Education, Volunteer works
19	2004- (on-going)	APEC Future Education Consortium: focusing on APEC network of ICT Model Schools for future education	ROK	ICT	Forum, Exchange, Publication of Report
20	2004-2005	Colloquium on Future Education Assessment: East Meets West	MAS	System Reformation	Colloquium (School Assessment)
21	2004	Forum on Trade in Education Services	AUS	Education Trade	Forum
22	2005-2008	APEC E-Language Research Consortium-Phase 1	PRC, US	Language/ICT	Research (e-language system development)
23	2005-2006	Training of Trainers in Problem-Based Learning (PBL) Approach for Business and Management Education	MAS	Higher Education	Workshop (Education)
24	2005-2006	A Collaborative Study on Innovations for Teaching and Learning Mathematics in Different Cultures	JPN, THA	Mathematics	Workshop (Mathematics Program)

25	2006-2008	APEC Learning Standards for English and Other Languages	CHL, CT	Language Education	Seminar (Analysis on Language Education Standards)
26	2006-2007	APEC Symposium on Open Source and Open Course for E-Learning	VN	ICT	Symposium (Development, Information)
27	2006	Higher Education Quality Assurance in the APEC Region	AUS	Higher Education	Research (Survey)
28	2006-(on-going)	APEC e-Learning Training Program	ROK	ICT	Short-term Training, Seminar (Informative), Website (Training)
29	2006-2007	A Collaborative Study for Teaching and Learning Mathematics in Different Cultures (II) Lesson Study Focusing on Mathematical Thinking	JPN, TH	Mathematics	Workshop (Research), Symposium
30	2007	APEC Conference on Evaluations as a Tool in Educational Planning Best Practices in Evaluation of Educational Program	MAS	Educational Evaluation	Conference (Information)
31	2007-2008	Collaborative Studies on Innovations for Teaching and Learning Mathematics in Different Cultures (III)-Lesson Study Focusing on Mathematical Communication	JPN, THA	Mathematics	Workshop (Research), Symposium
32	2007-2009	Mapping of Qualifications Frameworks across APEC Economies	AUS	ICT	Research (Survey), Publication of Report
33	2007-2009	Measures Affecting Cross Border Exchange and Investment in HE in APEC	AUS	Higher Education	Research (Survey), Publication of Report
34	2007-2009	Research Synthesis Basic to the Strategic Plan for English and other Languages	US	Language Education	Research (Survey), Publication of Report
35	2007-2008	Education to Achieve 21 st Century Competencies and skills for all: the past to meet the future	PE, PRC, US	Overall Education	Research
36	2008-2010	APEC Information and	PH	ICT	Forum, Exhibition

		Communication Technology for Education Exposition			
37	2008-2009	APEC Youth Camp: Caring for the sustainable development of the Asia-Pacific Region	PE	Others	Exchange (Youth Camp)
38	2008-2010	APEC 21st Century Mathematics & Science Standards and Assessments: A Focus on Middle and Secondary Schools	US	Mathematics, Science	Seminar (Case Study), Operation of Web Portal (Information)
39	2009-2010	Best Practices on Human Resource Capacity Building in Science and Mathematics	PH	Mathematics, Science	Forum (Information)
40	2009-2011	Comparability & Benchmarking of Competencies and Qualification Frameworks in APEC Region (Pilot Area: Construction and Welding)	PRC, PH	TVET	Research (Survey), Seminar (Case Study), Consulting
41	2009-2010	Higher Education Diploma Supplement	AUS	Higher Education	Research (Survey), Workshop (Sharing of Information)
42	2009-2013	Building Open Education Resource (OER) Capability in APEC Economies	US	ICT, TVET	Research (Survey), Web Portal Development (TVET)
43	2009-2012	APEC Training Program for Preventive Education on ICT Misuse	ROK	ICT	Short-term Training, Symposium
44	2009-2010	Study of Best Practices in Teaching and Learning Languages in APEC Economies: Lesson Study Application	CT	Language Education	Workshop (Information), Development (Teacher Training Materials)
45	2009-2010	International Benchmarking to Improve Mathematics and Support Exemplary Practices in Travel-Eligible APEC Economies	US	Mathematics	Seminar (Information), Operation of Web Portal
46	2009-2015	International Comparative Research to Identify Unique and Promising	US	Mathematics, Science	Research (Comparative Case Study)

		Practices in Mathematics and Science Teacher Preparation for APEC Economies			
47	2009-2010	21st Century Mathematics and Science Education for All in the APEC Region: Strengthening Developing Economies and Gender Equity Through Standards, Assessments, and Teachers	US	Mathematics, Science	Conference (Case Study)
48	2010-2011	Identifying Unique and Promising Practices in Secondary Math and Science: Teacher preparation in APEC Economies	US	Mathematics, Science	Research (Comparative Case Study), Distribution of Data
49	2012	Identifying Best Practices in Mathematics and Science: Teacher preparation in APEC Economies	US	Mathematics, Science	Research (Comparative Case Study)
50	2010-2011	Lesson Study for Implementing Curriculum: Using Innovative Assessment Problems	JPN, THA	Mathematics	Workshop (Education), Development (Assessment Toolkit)
51	2010-2011	Capacity Building for Policies and Monitoring of Cross-Border Education in the APEC Region	PRC	Higher Education	Research (Survey), Seminar (Information)
52	2011	Quality in Higher Education: Identifying, developing and Sustainable Best Practices in the APEC Region	US	Higher Education	Conference (Case Study)
53	2011-2012	Innovation on Problem Solving Based Mathematics Textbooks and e-textbooks	JPN, THA	Mathematics	Symposium (Information)
54	2011- (on-going)	APEC Higher Education Diploma Supplement Model: Development and Adaptation to Local Needs	AUS	Higher Education	Research (Survey), Workshop (Information)
55	2011-2014	Emergency Preparedness Education: Learning from Experience, Science of Disasters, and preparing for the Future	JPN, THA	Emergency Preparedness Education	Development (Education), Symposium (Information)
56	2012-2013	Green skills APEC Symposium	US	TVET	Research (Survey),

					Symposium (Information)
57	2012	Promoting Best Practices on Mathematical Modelling Course in higher education curriculum of APEC economies	INA	Mathematics and Higher Education	Conference (Information)
58	2012-2015	APEC Career and Technical Education (CTE) and Licensing Portal	CT	TVET	Development (Web Portal)
59	2012- (on-going)	Expanding Cooperation Among APEC Economies through Language Education—World Language Education and Talents Cultivation in APEC	PRC	Language Education	Development (Research Platform), Research (Language Education Problem)
60	2012- (on-going)	Conference on Cooperation in HE in the Asia-Pacific Region	RUS	Higher Education	Conference (Information)
61	2013-2014	Cooperative Alliance for TVET/CTE	CT	TVET	Conference (Information), Training
62	2013-2014	Education on Financial and Economic Literacy	PRC	Higher Education	Research (Needs Assessment), Development (Guidebook)
63	2013- (on-going)	Promoting Regional Education Services Integration: APEC University Associations Cross-Border Education Cooperation Workshop	AUS	Higher Education	Workshop (Information)
64	2013-2016	APEC Education Cooperation Project (ECP)	ROK	Overall Education	Development (Overall Education Cooperation Strategies), Symposium (Information)
65	2014-2016	Systematic Design of Green Skills Development in TVET	PRC	TVET	Research (Data Collection on Case Studies)
66	2014- (on-going)	APEC Higher Education Research Center	PRC	Higher Education	Research and Development
67	2014-2016	Sustainable Implementation of Cross-Border Internships Modules in the APEC Region: (1) Facilitating Policy Research and Best	CT	Higher TVET	Research (Internship Model), Exchange (Internship)

		Regulatory Practices for Cross-Border Internship in HE and VET in APEC region			
--	--	--	--	--	--

Note: Member economies are listed according to the below Abbreviations and Nomenclature and chronological order³.

If more than two or more member economies jointly proposed one project, each project has been counted towards the total. Thus, the original number of projects those have been reviewed is 67, while 13 projects have been counted more than twice according to its methods.

All APEC Project proposals and reports from 2006 and onwards are accessible at on-line APEC Project Database (PDB): <https://aimp2.apec.org/sites/PDB/default.aspx>

³ Abbreviations for APEC Member Economies

AUS (Australia); BD (Brunei Darussalam); CDA (Canada); CHL (Chile); PRC (People’s Republic of China, China also acceptable); HKC (Hong Kong, China); INA (Indonesia); JPN (Japan); ROK (Republic of Korea, Korea also acceptable); MAS (Malaysia); MEX (Mexico); NZ (New Zealand); PNG (Papua New Guinea); PE (Peru); RP (The Republic of the Philippines, the Philippines also acceptable); RUS (The Russian Federation is to be used for all APEC meetings at and above Ministerial level, Russia is to be used for APEC meetings below that level and also for publications); SIN (Singapore); CT (Chinese Taipei); THA (Thailand); US or USA (United States); VN (Viet Nam)