Asia-Pacific
Economic Cooperation

Promoting Regional Education Services Integration: APEC University Associations Cross-Border Education Cooperation Workshop

20 – 22 May 2014
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Discussion Paper

TABLE OF CONTENTS

ACRONYMS

ACTS	ASEAN Credit Transfer System
AHELO	Assessment of Higher Education Learning Outcomes
AIMS	ASEAN International Mobility for Students
AMAC	Australian Medical Assessment Collaboration
APEC	Asia-Pacific Economic Cooperation
APQN	Asia-Pacific Quality Network
APRU	Association of Pacific Rim Universities
AQAN	ASEAN Quality Assurance Network
AQRF	ASEAN Qualifications Reference Framework
ASEAN	Association of South-East Asian Nations
AUN	ASEAN University Network
AUSSE	Australasian Survey of Student Engagement
BOOC	Big Open Online Course
CBE	Cross-Border Education
COL	Commonwealth of Learning
COLRIM	Commonwealth of Learning Review and Improvement Model
DOCC	Distributed Online Collaborative Courses
ECTS	European Credit Transfer and Accumulation System
EQF	European Qualifications Framework
Erasmus	European Community Action Scheme for the Mobility of University Students
EU	European Union
GATS	General Agreement on Trade in Services
HEI	Higher Education Institution
ICT	Information and Communication Technology
IIT	Indian Institutes of Technology
JASON	Joint Academic Scholarship Online Network
MOOC	Massive Open Online Course
NQF	National Qualifications Framework
NSSE	National Survey of Student Engagement
NYU	New York University
OECD	Organisation for Economic Cooperation and Development
OER	Open Educational Resource
QA	Quality Assurance
SEAOHUN	South East Asia One Health University Network
SMOC	Synchronous Massive Online Course
SPOC	Small Private Online Course
Tuning	Tuning Educational Structures in Europe
UCTS	UMAP Credit Transfer Scheme
UMAP	University Mobility in Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organisation

EXECUTIVE SUMMARY

This discussion paper has been prepared to inform the APEC workshop on *Promoting Regional Education Services Integration: APEC University Associations Cross-Border Education Cooperation* to be held in Kuala Lumpur from 20–22 May 2014.

The workshop brings together university associations to support, pursue and work towards the achievement of the priorities outlined by APEC Economic Leaders. This includes the recognition of best practice in cross-border education (CBE), the identification of existing barriers to CBE, and an examination of ways to progress the priority areas identified.

The paper highlights the key considerations for APEC economies in strengthening collaboration around CBE in the university sector and builds on previous work undertaken within APEC and around the world. It focuses attention on four key areas of CBE: Student mobility; researcher mobility; provider mobility and mobility without movement. In each area there are a number of practical strategies to enhance CBE which can be considered during the workshop.

Student mobility

The movement of students across international borders is arguably the most visible aspect of CBE. Some key facts indicate its scale and importance.

- 7.2 million students are predicted to be studying internationally worldwide by 2025.
- More than 1 million students from APEC economies were studying internationally in 2010.
- APEC has a target, agreed in 2013, that 1 million intra-APEC university students per year will be mobile across APEC economies by 2020.
- Australia and the United States are the top destinations for students from APEC economies.
- China is the largest source country for mobile students to APEC economies.
- Mobility is popular for students when the supply of university places in an economy cannot meet demand and / or is perceived of poorer quality than that available overseas.
- The availability of scholarships and work opportunities are important in encouraging mobility.

Barriers to mobility include a range of factors, most notably the lack of sufficient funds among the majority of university students, which leads to significant inequalities in access to the benefits which mobility can generate. Where scholarships are available, many students are unaware of these. Other important barriers to mobility include a lack of credit transfer agreements between institutions, meaning that what students study may not be recognised in another country, and complex visa processes and restrictions.

A number of initiatives are underway to enhance student mobility and the ways in which it is measured and facilitated. These are taking place both around the world and involving APEC economies and specifically within APEC economies. These include Project Atlas, the ASEAN International Mobility for Students programme, Universal Mobility in Asia, and the Pacific and the ASEAN Credit Transfer System. In addition to supporting the further development of each of these initiatives, opportunities for further collaboration include the following:

- shared data collection on student mobility
- development of a shared and transparent qualifications framework
- development of an assessment collaboration in key disciplines
- guidelines to support students to enhance language skills during mobility
- central repository of information on scholarships to support mobility
- support for disadvantaged students to be mobile
- development of a central repository of visa requirements for study.

Researcher mobility

The mobility of researchers is another important element of CBE, encompassing not only the physical mobility of researchers across borders but also the shared use of research facilities, research funding and joint research publications. Mobile researchers are at different stages of their careers and include doctoral students, post-doctoral fellows, and more senior researchers. Researcher mobility can generate a number of benefits including:

- the development of international research networks
- reduced cost in conducting research through the pooling of resources
- a concentration of expertise in specific areas of specialisation
- an increase in the quality of research being produced
- higher impact factor of publications
- improvements in the international transfer of knowledge.

A lack of accurate data makes it difficult to estimate the scale of researcher mobility among APEC economies, but it is known to be growing. The United States remains the top APEC economy for researcher mobility, but there is growth within Asia, particularly involving Australia, China, Japan and Korea.

Barriers to researcher mobility are similar to those faced by students and include a lack of resources and visa restrictions. Researcher mobility is also limited by household and caring responsibilities, with a particular impact on female researchers. Pull factors include research infrastructure and the opportunity to cooperate with international colleagues. There is clear evidence that mobility at the early stages of researcher careers leads to greater international mobility throughout their careers, mainly by giving access to international networks.

One of the ways to enhance researcher mobility is collaborations between universities. Two examples are the Association of Pacific Rim Universities, which includes universities in 16 APEC economies, and ENSOCIO-LA, which includes two APEC economies in Latin America. Such collaborations are of value in promoting researcher mobility, but the exclusion of less prominent universities could mean that valuable possibilities for collaborative research are being overlooked.

Enhancing academic mobility requires APEC economies to collaborate on policies to encourage mobility, transparency on support for mobility, and programmes to support joint research. Possible areas for collaboration include:

- development of policies to encourage researcher mobility between APEC economies
- central database of grants and fellowships available to researchers in APEC economies
- shared data collection on researcher mobility among APEC economies
- programmes to support collaborative research projects across APEC economies.

Provider mobility

If student and researcher mobility are considered the first generation of CBE, provider mobility can be seen as the second generation. The movement of universities from one APEC economy to another, whether through branch campuses, joint or double degree programmes or other forms, has the potential to generate a number of academic, economic and political benefits, including:

- enhanced prestige from raising international profiles
- mobility opportunities for students
- international experience for staff
- relationships with foreign institutions and governments

- reduction of brain drain
- enhanced opportunities for research collaboration
- increased capacity of university sector to absorb students.

The main barriers to provider mobility are the regulations which countries have in place to protect their domestic university sectors. Some regulations are extremely onerous and regulations tend to vary in space and over time, making provider mobility much more complex than it needs to be in many contexts.

Commitment to the higher education provisions in the General Agreement in Trades in Services (GATS) would facilitate provider mobility by reducing unnecessarily burdensome restrictions. Another major advance would be enhanced collaboration around quality assurance, building on the work done by the ASEAN Quality Assurance Network and Alfa Puentes in Latin America and drawing on the COL Review and Improvement Model. Another need is to enhance the way in which qualifications are recognised between universities, possibly through the development of a diploma supplement and national and regional qualifications frameworks. Overall, key areas for collaboration include:

- preparation of a central database of regulatory bodies in each APEC economy
- use of diploma supplements
- expansion of quality assurance cooperation
- development of an APEC Quality Assurance Network
- development of an APEC Qualifications Framework
- development of transparent, consistent and informative descriptions of learning outcomes.

Mobility without movement

Utilising advances in information technology, the third generation of CBE supplements student, researcher and provider mobility to consider situations in which CBE can take place virtually, without the need for physical mobility. This opens up the benefits of CBE to the majority of students, researchers and providers which are unable to move location, and increases equity in opportunities to access CBE.

Open Educational Resources (OER) are teaching, learning or research materials which are available for use, adaptation and distribution and which can be mixed with other resources. OER can benefit universities in reducing costs of university education as well as improving quality of materials used. Uptake by universities is in an early stage but indications from work done by the Commonwealth of Nations are that the potential for OER to contribute to CBE among APEC economies is significant. In particular, OER opens up access to university study to previously marginalised populations and encourages collaboration between universities. Expanding the use of OER among APEC economies requires:

- promotion and awareness raising
- resources to train staff and facilitate the development and adaptation of OER for different contexts knowledge transfer to enable OER in local languages
- collaboration around quality assurance.

Massive Open Online Courses (MOOCs) are online courses provided free by universities. They tend to comprise courses designed by university staff with structured curricula. The uptake of MOOCs internationally has been enormous but there remains a concentration on the English language and on elite institutions. Enhancing access to higher education through MOOCs among APEC economies requires a number of strategies including:

- knowledge transfer on how to design and deliver MOOCs
- collaborations to develop MOOCs across universities
- enhancing infrastructure to enable access
- development of policy around quality assurance and credit recognition of MOOCS.

INTRODUCTION

This discussion paper has been prepared to inform the APEC workshop on *Promoting Regional Education Services Integration: APEC University Associations Cross-Border Education Cooperation* to be held in Kuala Lumpur from 20-22 May 2014. The workshop is funded by APEC with support from the Australian Government Department of Education.

Cross-Border Education (CBE) is a topic of considerable importance to APEC economies. It directly contributes to APEC's goal of supporting sustainable economic growth and prosperity in the Asia Pacific region. As APEC Economic Leaders stated in Annex D of the 2012 Vladivostok Declaration (see Appendix I):

> Facilitating the flow of students, researchers and education providers ... provides opportunities for a significant expansion of cross border education services to the benefit of all economies... Increasing cross-border student flows will strengthen regional ties, build people to people exchanges, and promote economic development through knowledge and skills transfer.[1]

University associations are well placed to play a major role in enhancing CBE among APEC economies. They are powerful groups in the higher education sectors of their respective countries. They are able to leverage the important social and economic contributions of their member institutions, and the wealth of expertise that universities embody, and to influence government policy and sector-wide practices.

This workshop brings together university associations to support, pursue and work towards the achievement of the priorities outlined by APEC leaders in Vladivostok and reaffirmed in Bali in 2013.[2] This includes the recognition of best practice in CBE, the identification of existing barriers to CBE, and an examination of ways to progress the identified priority areas identified.

The workshop paper draws on desktop research and aims to inform discussions, focusing attention on the key issues under deliberation and suggesting practical means to enhance collaboration in CBE. It highlights the key considerations for APEC economies in strengthening collaboration around CBE in the university sector and builds on previous work done within APEC and around the world.

CBE encompasses a broad range of issues. To focus discussion at the workshop, this paper targets a number of key themes.

- Student mobility - including credit transfers, qualifications recognition and enhancing equity.
- Researcher mobility - including doctoral training, fellowships and research collaborations.
- Provider mobility – including GATS, quality assurance and regulations.
- CBE without mobility – including Open Educational Resources and MOOCs.

Each section provides a number of examples of CBE among APEC economies to illustrate the issues at hand. Each section also addresses different ways in which data could be collected to demonstrate the phenomenon, scale, and impact of CBE.

BACKGROUND

The importance of collaboration between countries in stimulating Cross-Border Education (CBE) is increasingly recognised by multilateral agencies around the world. In illustration, the OECD[3], UNESCO[4], and the Asian Development Bank[5], among others, have all commissioned reports on various elements of collaboration in CBE in recent years.

In 2012 APEC Leaders underscored the need to improve the mobility of students, researchers and education providers, and to improve the existing network of bi-lateral agreements around cross-border education.[6] APEC Economic Leaders explicitly recognised the role of CBE in "creating more and higher quality jobs and bolstering productivity growth". APEC Economic Leaders placed an emphasis on enhancing cooperation between the education sectors of APEC economies as a means of fostering "innovative growth as students, researchers and education providers build scientific, technological and linguistic communities".

For the purposes of the paper the definition of CBE is taken from the joint UNESCO/OECD guidelines:

> higher education that takes place in situations where the teacher, student, program, institution/provider or course materials cross national jurisdictional borders.[7]

Universities have long played a significant role in their respective societies, educating the next generation of professionals, driving innovations in research, and shaping national debates. As many economies transition from a focus on production to one founded on knowledge, the role of universities is ever more important. But gone are the days when universities have been able to focus solely on their national contexts. Graduates can be expected to work in all corners of the world and the need to be ready for this reality puts pressure on universities to ensure that curricula and teaching facilitate students' gaining appropriate skills and knowledge.

At the same time, innovations in science, technology and other key academic areas are occurring around the world. Achieving great leaps forward which benefit society and stimulate economic growth requires researchers to look beyond the borders of the country in which they are based. Both of these call on a high degree of integration between universities in different countries.

Two key goals of cross-border collaboration are to enhance the quality of education available to students and to stimulate innovation in research to solve global dilemmas. Other benefits for universities, students, researchers and economies include: stronger regional and institutional ties; enhanced cultural understanding; the exchange of knowledge and skills; stimulation for innovation; and increased access.

First generation CBE - Student and researcher mobility

Second generation CBE - Provider mobility

Third generation CBE - Programme mobility

Figure 1: Three generations of CBE
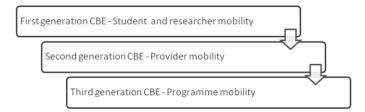
Much of the interest in CBE has traditionally been around student mobility, the so-called 'first' generation of CBE.[8] Student mobility comes under the Mode 2 of the General Agreement on Trade in Services (GATS), known as 'consumption abroad'. In this case clients or consumers (students) move to the country of the supplier.[9] Mode 2 mobility is the largest share of CBE among APEC economies.

Another form of person mobility under the umbrella of CBE is researcher mobility, falling under Mode 4 of the GATS, known as 'presence of natural persons'. In this form of CBE, researchers move to another country for a temporary period of time, for example to collaborate on research projects. Researcher mobility also encompasses collaboration on academic papers, a form of mobility which does necessarily demand movement. Taken together, student and researcher mobility can be regarded as the 'first generation' of CBE.

A third form of CBE is provider mobility, falling under Mode 3 of the GATS, known as 'commercial presence'. This involves a university from one country establishing a centre for teaching and/or research in another country, often in collaboration with a local provider. This is a growing trend among APEC countries and calls for a structure of regulations and agreements which support provider mobility. Provider mobility can be regarded as the 'second generation' of CBE.

While CBE tends to be seen as a phenomenon which requires movement across borders, advances in technology are increasingly offering alternative forms of CBE. This is important because the majority of students, researchers and providers do not have the financial means to participate in mobility. Thus, the alternative of 'CBE without movement' opens up the benefits which can derive from CBE to a much participation. The newest generation of CBE includes activities such as Open Education Resources and Massive Open Online Courses (MOOCs) and can be regarded as the 'third generation' of CBE. It crosses over modes 1 and 3 of the GATS – cross-border supply, and commercial presence.

Despite the benefits of CBE, universities and governments can be cautious about engaging – fearful that these benefits will come at the expense of their ability to protect national interests and respond to local demands. Protecting local interests while gaining from the benefits which CBE has to offer calls for carefully thought out collaboration in key areas.

In the Asia-Pacific region, cross-border education requires cooperation across a range of member economies of great diversity. Each economy has a unique history, range of cultures, political structures, population and place in the world. Yet all are interdependent, relying on their neighbours around the Pacific Ocean to help them achieve their social and economic objectives.

In enhancing CBE, APEC economies can look to proven strategies in place in other parts of the world, for example the European Union. But it is important to recognise that APEC economies are unique, without the same array of inter-governmental agreements in place. Thus, strategies to enhance collaboration around CBE in APEC member economies need to be pursued on a voluntary basis consistent with individual economies' circumstances.

In considering CBE collaboration it is worth taking into account the joint OECD/UNESCO report on CBE which highlights four key areas for collaboration on CBE. These are:

- ensuring comparable quality of educational programmes across countries
- sharing good practice among stakeholders
- increasing transparency on educational programmes and graduate skills and knowledge
- enhancing the quality of teaching and research staff and the conditions in which they work.[10]

This workshop will contribute towards progress in collaboration around CBE in APEC economies by identifying initiatives and projects for supporting and increasing mobility that could be undertaken on a voluntary basis in the near and mid-term. These will lay strong foundations for long term collaboration across regional and individual economies' university associations and, by extension, their member universities.

ENHANCING THE MOBILITY OF STUDENTS

The movement of students across international borders is arguably the most visible aspect of cross-border education (CBE). More students are internationally mobile than ever before. 40 years ago, 800,000 students were enrolled in tertiary education programs outside of their own country of citizenship.[11] By 2011 the number of internationally mobile students had increased to 4.3 million, nearly double the number a decade earlier, as Figure 2 indicates.[12] The number of students engaged in CBE is set to continue to rapidly expand over the coming decade, with Knight[13] predicting that 7.2 million students will be studying internationally in 2025.
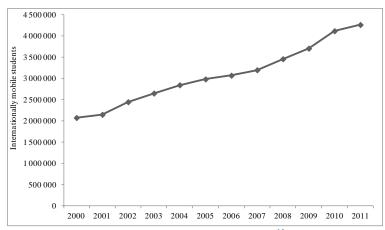

Figure 2: Growth of internationally mobile students, 2001 - 2011[14]

The most familiar form of student mobility involves students enrolling in a full degree program in a foreign country; however there are many other types of student mobility including undertaking short-term study-abroad and participating in practical experiences in a foreign country.[15]

Patterns of international student mobility

Among APEC economies the two predominant types of student mobility are degree-mobility and credit-mobility.[16] Growth in student mobility has been particularly strong in East Asia and the Pacific. The proportion of degree-mobile students from the region has risen from 24 per cent in 1999 to 29 per cent of the total international student population in 2008.[17] Over a million students from APEC economies were studying internationally in 2010.[18] Appendix II provides a summary from each APEC economy.

> **Forms of Student Mobility**
>
> Degree mobility – when a student moves abroad to undertake a whole degree or other qualification.
>
> Credit mobility – when a student moves abroad for part of their qualification.

Student mobility is increasingly occurring within regions rather than at a global level.[19] An example of this is that in East Asia and the Pacific, the proportion of international students choosing to remain in the region, rather than seek study opportunities elsewhere, has increased from 36 per cent in 1999 to 69 per cent in 2009.[20] By 2020 APEC has a target of 1 million intra-APEC university-level students per year.[21]

The most popular APEC economies as destinations for students from other APEC economies are the United States and Australia.[22] These patterns are reflective of the importance of the English language in decision making about international study. Other linguistic patterns are also apparent. The top destination for Peruvian students is Spain, while many Russian students study in Germany. Beyond language, intra-

regional mobility is important. For example, international students in Japan come from China, Korea, Viet Nam, Thailand and Malaysia. Figure 3 illustrates the top APEC destinations for APEC students.
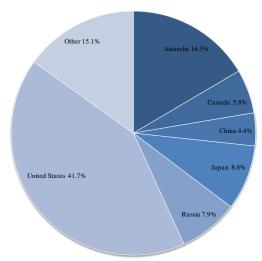

Figure 3: Proportion of APEC students hosted by APEC economies[23]

While the United States and Australia are the top two destination countries for students from other APEC economies, the top sending country is China. Chinese students comprise at least a quarter of enrolments of international students in Japan, Thailand, Australia and Canada and account for more than three quarters studying in Hong Kong and the Republic of Korea.

Although the absolute numbers of degree-mobile students from APEC economies is large, the 'gross outbound enrolment ratio' (the percentage of the tertiary-aged population who are studying abroad) is relatively small. Even in China, where huge numbers of students are internationally mobile, this represents only 0.5 per cent of their overall tertiary-aged population.[24] This indicates a significant potential for growth in student numbers in future years.

Moreover, these figures are likely to underestimate the level of international mobility.[25] They may not include all international students enrolled in private institutions, nor capture all students enrolled in offshore campuses or foreign branch campuses in their home country. The figures also do not include students who participate in study abroad schemes, student exchange programs and other types of credit-mobility.[26] This is complicated by the fact that the way in which internationally mobile students are defined differs between regions and countries, and the number of degree-mobile students may be recorded using different criteria in different countries.[27]

As the number of internationally mobile students continue to grow, understanding the patterns and drivers of student mobility will be increasingly important. Equally, understanding the way in which internationally mobility impacts students, including attitudes as well as both academic and career outcomes, is extremely important. At present the availability and quality of data collected on student mobility varies from one APEC economy to another. There is also a lack of information on the outcomes of international student mobility, such as determining which benefits the investment in international education yields for individuals, universities and society.[28]

Malaysian case study

Malaysia differs from most other APEC economies in having an almost equal balance of inbound and outbound students. UNESCO Institute of Statistics figures highlight the patterns shown in Table 1.[29] Among APEC economies top destinations for students include Australia, the United States, the Russian Federation and Indonesia, with more than 2,500 students going to each destination. Top sending APEC nations are Indonesia and China, with more than 7,000 students from each economy. Other major sources for students to Malaysia include the Middle East, South Asia and Africa.

Table 1: Malaysia inbound and outbound students (UNESCO, 2012)

Malaysia	Inbound	Outbound
Total	57,824	53,884
Rank of APEC economies		
• Australia		1
• United States		3
• The Russian Federation		4
• Indonesia	1	5
• Japan		6
• New Zealand		7
• Canada		11
• Republic of Korea		13
• China	2	
• Thailand	12	

Dual flows in Malaysia can also be seen in branch campuses. Thus, a number of institutions have branch campuses in Malaysia, including Monash University and Curtin University of Technology (Australia) and the University of Nottingham and Newcastle University (United Kingdom). At the same time, Malaysian institutions have branch campuses in other countries, such as the Limkokwing University of Creative Technology campuses in Cambodia, China, Indonesia and the United Kingdom.

Project Atlas is addressing some of these shortcomings.[30] An initiative of the Institute of International Education in the United States, in collaboration with education and data agencies in numerous countries around the world, Project Atlas aims to collect up to date and comprehensive data on student mobility. At the same time, it promotes the harmonisation of data to enable sharing and comparison. Data sharing partner agencies in APEC economies include the National Association of Universities and Higher Education Institutions in Mexico, the Australian Government Department of Education, the Canadian Bureau of International Education, the China Scholarship Council, the Ministry of Education in Chile, and the Japan Student Services Organization.

More specifically there are plans to commence a project which collects more comprehensive data on student mobility within the APEC region. This will involve a review of current data collection practices and their comparability and workshops to address best practice in data collection.

Cross-Border Education Data Gathering and Dissemination Technical Assistance

Coming out of APEC's Human Resources Development Working Group this initiative has been proposed by the United States and co-sponsored by Australia, China, Malaysia, Papua New Guinea, Peru, the Philippines, Chinese Taipei and Thailand. Running from 2014 to 2019 the project will assist APEC economies to collect comprehensive and reliable mobility data. It will incorporate a series of workshops to address regional and national challenges in data collection, with best practice in survey methodology and data analysis shared among participants.

OPPORTUNITIES FOR COLLABORATION

- Agreed definitions on different forms of student mobility and shared data collection on patterns of student mobility.

- Shared data collection on outcomes of student mobility (e.g. short and long term graduate destinations surveys).

- Shared data collection on impact of student mobility on student attitudes (e.g. pre and post mobility attitudes towards global issues).

Push and pull factors

Many factors drive rates of student mobility and students' choice in study country and institution. The patterns of movement by internationally mobile students can be explained by a combination of factors in both source and destination countries that encourage students to study overseas, often referred to as 'push' and 'pull' factors.[31]

One of the key push factors at play in some APEC economies is the limited availability of places for domestic students in higher education.[32] In China, for example, there has been massive expansion in domestic higher education, but there are still large numbers of Chinese students who are unable to enter higher education domestically.[33] Another 'push' factor is the perceptions students have of the quality of higher education available domestically compared to that available abroad.[34]

As more APEC economies increase their investment in higher education, there will likely be fewer domestic factors pushing students to study abroad.[35] In order to maintain high levels of international student mobility in the region, APEC economies will need to focus on enticing students to be mobile while ensuring competition for students does not lead to overly commercialised education.[36]

There are equally a number of pull factors that entice students from APEC economies to study abroad. These include the historical, linguistic, political and geographic links between home and foreign countries and access to courses or degree programs not available locally.[37] Other pull factors include perceptions of the quality of education offered in the foreign country and the potential value of the degree for future careers. Access to scholarships and funding, access to work opportunities and immigration prospects are other important pull factors.[38]

The language of instruction is one of the main drivers in internationally mobile students' decision on where to study. The availability of English-language instruction is attractive to many internationally mobile students,[39] and the desirability of English-language programs has meant that countries such as the United States, United Kingdom, Australia, Canada and New Zealand have historically dominated the international student market, hosting around half of all the world's internationally mobile students.[40] This desirability has also led to many institutions in non-English speaking countries now offering courses in the English-language.[41]

As global power shifts more to Asia, however, there is growing interest among students in learning languages other than English. For example, Korean students studying in China and Japan report that a desire to gain expanded Asian language skills (despite choosing to study in the English language) was an important factor in their decision to study.[42] Despite this growing trend, students from English-speaking countries typically do not favour non-English speaking destinations, unless they are seeking out a short-term study abroad program as an opportunity to learn or improve their skills in an additional language.[43] Because of the dominance of English-language instruction in many countries, this may limit the international mobility of non-English speaking students and also limits where some internationally mobile students choose to study.

Language barriers not only affect students' level of mobility and choice of destination, but can also have an impact on international students' experience of study. Inadequate language skills can affect both the academic achievement of international students and how well students adjust to the international study environment, as well as affect students socially.[44] Support to help mobile students cope with a lack of proficiency in the language of study would go a long way towards helping make international study more attractive for those with less confidence in their language skills.

OPPORTUNITIES FOR COLLABORATION

- Develop guidelines about supporting students to enhance language skills during mobility.
- Cooperate to enhance second-language teaching in otherwise English speaking universities.

Economic barriers to pursuing international opportunities

While mobility provides students with a number of benefits and opportunities, these are not equally available to all. Inequality of access is a significant issue in student mobility, one which the focus on trends and data tends to overlook. A meta-analysis of literature on student mobility from the United Kingdom finds that credit-mobile students tend to be "disproportionately young, female, white and middle-class" compared with the overall student population.[45] Credit-mobile students also tend to be from higher socio-economic backgrounds when compared with all students.[46] Degree-mobile students tend to have existing international links and to be from socially privileged backgrounds.[47] This finding is supported by an extensive review of mobility under the Erasmus programme in Europe.[48]

The North American National Survey of Student Engagement (NSSE) and the Australasian Survey of Student Engagement (AUSSE) provide some further insights into the demographic backgrounds of students who study abroad. By senior year, ten per cent of students from the United States and nine per cent of Canadian students who were the first generation to attend college have had a study abroad experience.[49] This compares with 21 per cent of non-first-generation students from the United States and 14 per cent of Canadian non-first-generation students. A similar pattern has been found in Australia and New Zealand.[50]

Students from disadvantaged backgrounds also seem to be under-represented in study abroad programs. Findings from the NSSE suggest that 'Caucasian' students from the United States are more likely to have participated in a study abroad program by senior year (17%) than African American (7%), American Indian or Alaskan Native (11%), Asian or Pacific Islander (13%) or Hispanic students (11%).[51] Similarly, findings from the AUSSE also show that by later years of study only four per cent of Aboriginal and Torres Strait Islander students from Australia have participated in study abroad programs compared with nine per cent of non-Indigenous Australian students.[52]

The costs associated with international mobility can be huge barriers for many prospective international students, particularly those from disadvantaged backgrounds. The costs include not only tuition fees, but also travel costs, visa expenses, ongoing living expenses, and potential loss of income.[53] Prospective

students are motivated to study in certain destinations and not others based on cost considerations.[54] For example, in a recent survey of over 35,000 international students studying in Australia, only 51 per cent of respondents were satisfied with the cost of living.[55]

The impact of cost on mobility patterns is demonstrated in data from the Erasmus programme. Wealthier European countries send a greater proportion of students abroad than newer (and relatively poorer) members of the European Union (EU).[56] Although grants are provided to many students through the Erasmus program, 55 per cent of credit-mobile students who participate in Erasmus find their financial grant to be inadequate for their study abroad period.[57] This suggests that costs of moving and living abroad impact on students' ability to access international opportunities and affects students from certain countries and backgrounds more than others.[58]

> **Scholarships for Student Mobility**
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> Most APEC economies have well-established scholarship schemes available for international students. Examples of international student scholarships include the Fulbright United States Student Program which has supported around 3,500 students from over 150 countries worldwide,[59] and currently supports over 150 students and researchers in APEC economies.[60] Another example is the 100,000 Strong Initiative, launched by the United States Government and funded by private sector philanthropic support, aimed at dramatically increasing the numbers and diversity of students from the United States studying in China. The Chinese Government has already committed to providing 10,000 'Bridge Scholarships' to students from the United States to study in China which is in addition to scholarships from individual colleges, universities and government and further funding from foundations and private companies that the 100,000 Strong Initiative has solicited.[61]

While there are many scholarships available to international students, it can be difficult for students to find information about those they may be eligible for. This is due to the diversity of groups offering scholarships including individual institutions, foundations and government bodies. To overcome this, some APEC economies and international groups have created scholarship databases to draw together information about different scholarships available.

> **OPPORTUNITIES FOR COLLABORATION**
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> - Shared research and data collection on patterns of mobility by socio-economic status.
> - Shared research and data collection on motivations for, and barriers to, mobility.
> - Central repository of information on scholarships available to students in APEC economies.
> - Joint funds to provide APEC scholarships to students from disadvantaged backgrounds.

Credit transfer processes

Developing smooth credit transfer systems encourages participation in short-term study abroad schemes and helps facilitate the credit-mobility of students. Credit transfer is the process by which credits for the successful completion of a unit of study is transferred from a host institution to the home institution to form part of the credits for a student's overall qualification.[62]

Transferring credits for units studied at a different institution can be challenging for many reasons. Curricula are often designed as integrated programs, some units are prerequisites for others, some are considered 'core' to the degree program and some are electives.[63] The processes for managing credit

transfer are often unwieldy and difficult for both students and institutions to negotiate and often differ within countries as well as between them.[64]

Students considering participating in short-term study abroad programs or other forms of credit-mobility may be reluctant if they are not certain that they will receive credit for study done at a host institution.[65] Lack of clarity and agreement around credit transfer processes can also deter students from expanding their skills and knowledge: they may choose to study at an institution with similar units rather than studying somewhere which could enhance their overall academic experience.[66]

> **ASEAN International Mobility for Students Case Study**
>
> The ASEAN International Mobility for Students (AIMS) programme was first piloted as the Malaysia, Indonesia, Thailand (M-I-T) Higher Education Student Mobility Programme in 2010. This programme is currently being expanded to develop a regional student mobility programme.
>
> AIMS was piloted with 117 students from 23 participating institutions. By 2015, it has been agreed that AIMS should be expanded to include at least 500 credit-mobile students in the region. The reasons for the early success of AIMS includes that it has the financial backing of education ministries; it has focused on fostering communication between participating institutions; and providing training to institutions on using University Mobility in Asia and the Pacific (UMAP) to assist with managing transfer of credits[67]. Students are supported in AIMS through the development of simple, agreed enrolment procedures; pre-departure briefings and in-country orientation programmes; developing communication strategies between students and institutions; and ensuring that at least two students are included in each student exchange intake.[68]

Although there are currently no global credit transfer systems, some regional systems have been implemented to help streamline credit transfer processes. In APEC economies these systems include *Universal Mobility in Asia and the Pacific* (UMAP) and *ASEAN Credit Transfer System* (ACTS). Beyond the region, other systems include the *European Credit Transfer and Accumulation System* (ECTS), the *Tuning Educational Structures in Europe* (Tuning) and the *European Community Action Scheme for the Mobility of University Students* (Erasmus).

UMAP is a voluntary association of representatives from the higher education sector in the region. UMAP includes a formal two-way Student Exchange Program for both undergraduate and postgraduate students. Participating institutions are expected to waive tuition fees for UMAP students, and credit for units successfully completed in the host institution must be accepted by the home institution.[69] The credit transfer process for UMAP is managed by the *UMAP Credit Transfer Scheme* (UCTS). This system is based on the *European Credit Transfer Scheme* (ECTS) and includes three components: the *UMAP Study Plan*, which forms an agreement on the subjects that a student will study and the credits that they will receive, the UCTS Credit Points Scale, which helps institutions convert the credits from the host institution to the home institution, and the *UCTS Grading Scale* which assists with the conversion of grades from the host institution to the home institution.

The *ASEAN Credit Transfer System* (ACTS) is another cross-border initiative aiming to streamline credit transfer and facilitate student exchanges between participating institutions in Asia and the Pacific by replacing the need for bilateral agreements and memoranda of agreement between individual countries or institutions. ACTS includes processes for facilitating student exchanges between member institutions of the ASEAN University Network as well as credit transfer processes and grade equivalency. Institutions from eight APEC economies actively participate in ACTS.[70]

While the systems set up by UMAP and ACTS likely streamline the process of credit and grade transfer between participating institutions, little is published about the students who have taken part in these student exchange programs, nor the extent to which these systems has helped increase the amount of credit-mobility between APEC economies. In a pilot of the AIMS programme with students from institutions in Malaysia, Indonesia and Thailand, UMAP was used to assist with credit transfer processes, but was found to have limited usefulness as the system was inconsistently used.[71]

The *European Action Scheme for the Mobility of University Students* (Erasmus) is a student mobility scheme that has provided the opportunity to study abroad to over three million students.[72] Over 4,000 higher education institutions are currently members of Erasmus. In the 2011-12 academic year, over 250,000 students and 45,000 staff from 33 European countries participated in a period of mobility abroad.[73] Starting in 2014, Erasmus+ aims to support cross-border student exchange, training, work experience and volunteering for more than four million Europeans over seven years.

Helping facilitate credit transfer and the Erasmus program is the *European Credit Transfer and Accumulation System* (ECTS) which makes credit transfer between institutions and countries much easier.[74] ECTS is a cross-national credit system that aims to increase transparency of learning outcomes and processes. ECT credits are based on the time that students need to spend to complete all learning activities to achieve expected learning outcomes that relate to level descriptors set out in the EQF. Credits awarded to students in one program can be transferred into a different program at the same institution or another institution in one of the 46 signatories to the Bologna Process.[75]

OPPORTUNITIES FOR COLLABORATION

- Increasing cooperation in UMAP to enhance its efficiency and usability, using lessons from the *European Credit Transfer and Accumulation System*.

- Data collection on the use and efficacy of credit and grade transfers among APEC economies.

Measurement of learning outcomes

However well executed tools and frameworks for credit transfer and qualification recognition are, on their own they may be insufficient to satisfy concerns about the equivalence of qualifications. This is because regardless of their rigour these procedures cannot automatically guarantee that students have achieved the skills and knowledge defined in a course or degree.

Collecting data which provides evidence on student achievement of learning outcomes requires shared assessment practices. This is being conducted within countries on an increasingly regular basis. For example, in Australia, the Australian Medical Assessment Collaboration (AMAC) project has brought a number of medical schools together to share assessment materials and develop a shared assessment instrument.[76] The approach taken has been one which enables institutions to share resources and know-how on student assessment, as well as gaining the ability to benchmark the performance of their students against those at other institutions within the country.

Internationally, the OECD's Assessment of Higher Education Learning Outcomes (AHELO) Feasibility Study demonstrated that it is possible to compare learning outcomes internationally.[77] The AHELO Feasibility Study arose from the recognition that many graduates will work internationally and thus it is important to determine the extent to which they have equivalent skills and knowledge.[78] A number of APEC economies (or regions within economies) were involved in the AHELO Feasibility Study, namely Australia, Canada, Japan, Republic of Korea, Mexico, Russia and the United States, with assessments conducted in 12 languages.

Work among APEC countries to develop learning outcomes assessments for final year bachelor degree students in particular sub-disciplines within the broad areas of most significance (for example, health, engineering, science) would yield a number of benefits including:

o bringing together disciplinary experts from across APEC economies to define common skills and knowledge which all students should be able to demonstrate
o sharing expertise around teaching, assessment and quality assurance of student learning
o enriching the assessment resources available to all institutions and raising the quality of assessment practices
o facilitating credit transfer and the recognition of qualifications across universities and countries.

OPPORTUNITIES FOR COLLABORATION

• Developing assessment collaborations to share assessment resources between institutions.

• Developing shared learning outcomes assessments in core disciplines.

• Developing shared learning outcomes statements in core disciplines.

Impact of visa conditions and immigration policies on student mobility

Restrictive or overly bureaucratic visa conditions and restrictions on immigration can also impact on students' international mobility. Uncertainty around visa approvals and restrictive immigration rules may act as deterrents to prospective international students.[79] On the other hand, streamlining visas and standardising work visas may help encourage inflows of international students.[80]

Difficulties with visa requirements range from students having difficulty understanding the requirements, costs and fees associated with applying for visas, experiencing lengthy waits for visa approvals, and restrictions on working while on a student visa which may impact students' access to practicum or work experience opportunities related to their study. [81]

Tightening visa conditions and application requirements has a significant impact on the inflow of international students. For example, after the 9/11 terrorist attacks, the United States restricted the issue of student visas, and implemented new checks on applications, causing significant processing delays. This greatly reduced the number of students moving to the United States to study.[82] Similarly, Australia implemented more restrictive visa policies in 2010 in response to concerns about 'non-genuine' students applying for student visas in the hope of achieving permanent residence.[83]

Inversely, when visa conditions are relaxed this has a direct impact on the inflow of international students. When the government in Hong Kong, China relaxed visa requirements and removed restrictions on the number of fee-paying students allowed to enrol in each institution, this significantly increased the flow of mainland Chinese students into Hong Kong.[84] Learning from these lessons, Japan's Global 30 project – which aims to attract 300,000 international students by 2020 – has included policies to help streamline the visa application and course admissions processes for international students.[85]

OPPORTUNITIES FOR COLLABORATION

• Developing a central repository of links to relevant government information on visa requirements for study in each APEC economy.

ENHANCING THE MOBILITY OF RESEARCHERS

Students are not the only grouping for which CBE expands the opportunity to be mobile. The mobility of researchers is another important form of CBE, encompassing not only the physical mobility of researchers across borders but also the shared use of research facilities, research funding and joint research publications. While the factors which drive researcher mobility differ in many ways from those which drive student mobility, the barriers to the expansion of student and researcher mobility are very similar.

Researcher mobility is an important part of CBE due to the benefits which it can generate. Most notably, researcher mobility aids the development of international research networks, can increase the quality of research being produced, and improves the transfer of knowledge internationally.[86] Forms of researcher mobility vary. One expression includes moving across borders to take up a research position or to undertake doctoral studies or a postdoctoral fellowship. Another expression is when researchers from multiple countries join disciplinary or interdisciplinary research groups. This may involve physical mobility but they may also collaborate across borders while remaining in their home country.[87] Despite concerns about the loss of skilled human capital through 'brain drain', the movement of researchers is increasingly seen in a positive light for both home and host countries, having been reconceptualised as 'brain circulation'.

Collaboration across borders and international mobility is motivated by many factors.[88] One is the escalating costs of conducting research, particularly in sciences where expensive scientific instruments and infrastructure is required, leading countries to pool their resources. In addition, the increasing complexity in research – in particular in scientific fields – has increased the need for collaboration of specialised researchers to ensure the success of research projects. When combined with practical advances, such as relatively low cost air travel and improvements in communications infrastructure, researcher mobility is increasingly regarded as standard academic practice.

Patterns of researcher mobility and collaboration

International collaboration and researcher mobility has grown rapidly over the past decades. More than a third of articles published in international journals include authors from more than one country, up from around 25 per cent 15 years ago.[89] International collaboration seems to have grown particularly rapidly within the field of science, yielding significant benefits.[90] Data from the Royal Society indicates that when academic journal articles include international authors, their impact factor increases. An example is that "when working with Russia, Chinese authors quadrupled the standard impact of their papers; Russian authors tripled the impact of their output when working with China".[91]

While researchers, particularly in natural and medical science disciplines, are among the most internationally mobile groups of professionals around the globe,[92] it is difficult to estimate exactly how many researchers are mobile.[93] Results from the 'Careers of Doctorate Holders' project – a joint OECD, UNESCO Institute for Statistics and Eurostat project – suggest that international mobility of researchers is reasonably common, but less common than might be expected.[94] This data collection suggests that around 14 per cent of doctorate holders have been mobile in the past decade, however, this percentage may not capture all forms of international mobility and does not include international collaboration.[95]

When asked about the locations of colleagues and networks with whom researchers do their most important transnational collaboration, collaborations tended to be dominated by researchers' home country and the United States.[96] The United States was the top foreign location for collaboration for researchers in Australia, Japan, Korea, and Chinese Taipei, while Chinese researchers most frequently listed other Chinese researchers. Similarly, an American study found that researchers were very much

focused on their own research team, spending just 5.1 per cent of their research time collaborating with researchers in other countries, as Figure indicates.[97]
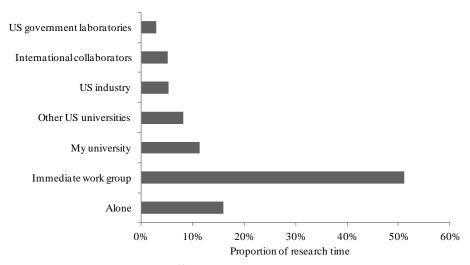

Figure 4: Research time collaborations[98]

However, in addition to the growth in international mobility and collaboration among researchers, there have also been shifts in the composition of international research networks with a particularly strong increase in the level of collaboration and co-publication between China and the United States and between European countries and Japan.[99]

There are different ways in which international researcher mobility and collaboration are measured. One common measurement of collaboration is co-authoring a report or journal article. Co-authored research outputs may overestimate or underestimate the extent of the collaboration, however, as collaborating researchers may choose to publish the results of their research separately, or co-authors may just be writing up research results together without collaborating to conduct the research.[100] Other ways to measure international collaboration include through surveys of researchers or analysis of researcher CVs.

Data on the mobility of researchers are currently not sufficient to properly understand patterns of researcher movements and it is difficult to understand the type and extent of researcher mobility.[101] There is also a need for more research into the impact of research collaboration on productivity of research and the impact collaboration has on the development of human capital in the sciences and research.[102]

Measuring the impact of collaborative research can be difficult, but there are a number of methods that are frequently used. Citation analysis – the number of times a published article is cited in other articles – is often seen as an objective measure of the impact of research.[103] Measuring the impact of a journal in which research is published – for example through ratings of journals or mean citation rates per article - is another way of looking at the impact of research. Research awards, and the awarding of grants or fellowships are another way of measuring the longer-term impact of research efforts. Social network analysis has shown that the intensity of collaboration seems to be positively and significantly related to the quality of research output.[104]

To grow the level of collaboration and mobility among researchers, we need to understand the motivations, ambitions and barriers that exist for individual researchers.[105] Many factors seem to influence the attractiveness and choice of location for researchers. Salary is an important driver, as are the legal and regulatory hurdles of moving abroad and the availability and visibility of positions. The quality of research conducted in a country and the level of high-quality research infrastructures seem to

be the most important factors influencing researchers' decision to move abroad and in their decision on where to work.[106]

Another important consideration is whether all researchers have equitable opportunities to access international collaboration and mobility opportunities. There appears to be a gender gap among researchers in their access to international mobility. Jöns[107] finds that female researchers tend to be less internationally mobile than their male colleagues, however, this gender gap has reduced somewhat over the past decades. Younger female researchers and those in the earlier stages of their careers tended to be equally mobile with male researchers but the flexibility to relocate internationally decreases among more experienced female researchers over the age of 35.[108] One of the main considerations for female researchers becoming internationally mobile is the competing demands of work and family.[109]

OPPORTUNITIES FOR COLLABORATION

- Development of policies to encourage researcher mobility between APEC economies.

- Central database of grants and fellowships available to researchers in APEC economies.

- Shared data collection on researcher mobility among APEC economies, including motivations, barriers, outcomes and impact on career trajectories.

- Shared data collection on the impact of research collaboration on productivity of research outcomes among APEC economies.

- Shared data collection on joint-citations across APEC economies and the impact of citations.

Impact of visa conditions and immigration policy on international mobility

Immigration policies and visa conditions can create significant regulatory hurdles for researchers who wish to become internationally mobile. In a survey of researchers, around 40 per cent of those who had previously been internationally mobile or who were currently working abroad indicated that immigration regulations and visa conditions were difficult to negotiate and were seen as serious obstacles to moving abroad.[110]

Over the past decades, cross-border mobility of researchers has been facilitated in some part by increased liberalisation of trade policies, but also by revising immigration policies for researchers.[111] Most research into the impact of visa conditions and immigration policy has been conducted in the United States and Europe, so little is known about the effect of revising immigration policies have had on increasing researcher mobility throughout APEC economies.

Similar to the impact of visa conditions and immigration on student mobility, visas and immigration policy can also help or hinder the level of inward researcher mobility. In the United States, immigration policies encourage universities to recruit and employ researchers and researchers from abroad. There are few restrictions on the numbers of visas that universities can be issued which encourages universities to look abroad for the best researcher talent.[112]

In contrast, recent caps on the level of immigration in the United Kingdom have made it more difficult for non-EU scientists and researchers to work in the United Kingdom.[113] Many universities and businesses have rallied against these caps, and there have been recommendations made by the European Parliament to streamline visa types and introduce short-stay visas for researchers from outside the EU to work and research in Europe.[114]

OPPORTUNITIES FOR COLLABORATION

- Development of guidelines on immigration policies which encourage researcher mobility.

- Joint strategies to encourage research mobility among APEC economies.

- Streamlining visa conditions for researchers moving between APEC economies.

Influence of early career research experience on international mobility

Researcher mobility tends to be highest among early career researchers, particularly doctoral students and postdoctoral fellows.[115] A postdoctoral fellow can be defined as "an individual who has received a doctoral degree (or equivalent) and is engaged in a temporary and defined period of mentored advanced training".[116] Mobility among postdoctoral fellows in particular is increasing. For example, the proportion of international postdoctoral fellows in the United States and the United Kingdom has substantially increased in recent decades.[117]

There seem to be many reasons behind the increasing number of postdoctoral fellows working internationally. Postdoctoral fellows are being actively recruited internationally as they are well-trained and relatively inexpensive.[118] The number of doctoral graduates in science and engineering are increasing in some regions, particularly from China and India, but not keeping up with the level of demand in other countries.[119] This means that in a number of APEC economies, the number of local graduates applying for postdoctoral positions is low, with most applications coming from international candidates.[120] There are also increasing expectations that researchers should do a postdoctoral period abroad.[121]

Doctoral students and postdoctoral fellows' experience of studying or working abroad is often their first introduction to international research networks. This early mobility experience is influential for future researcher mobility and international research collaboration. In a survey of more than 10,000 scientists in Asia and the Pacific, the locations where researchers studied for a PhD and undertook their postdoctoral fellowship were seen as "key drivers for future career networking and collaboration".[122] Working abroad as a postdoctoral fellow helps cement existing international networks and establish new contacts that remain important throughout researchers' future careers.[123]

Data on the destinations of internationally mobile PhD students among APEC economies suggests much intra-APEC movement, as Figure 5 highlights.[124] The United States remains a dominant destination for internationally mobile PhD students from many APEC economies but other patterns include 26.5 per cent of Indonesians and 12.8 per cent of Koreans going to Japan and around 10 per cent of mobile PhD students from Singapore and the Philippines going to Canada.
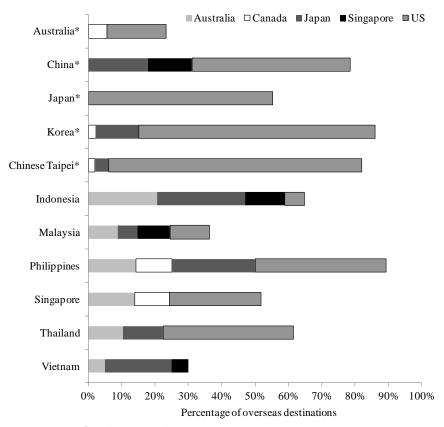
Figure 5: Destinations for PhD research training
*Australia not included as a destination in data reported for these APEC economies

Enticing or requiring early-career researchers, including doctoral students and postdoctoral students, to study or work abroad may be one way to increase future international collaboration and mobility among researchers.[125] Another way to increase levels of researcher mobility is to offer scholarships for international doctoral students, fellowships for international researchers and coordinating researcher exchange programs (Jacob and Meek 2013). There are numerous scholarships, fellowships and exchange programs that attract talented researchers to study or work abroad. These may include shared teaching of research students by researchers in different countries.

An example of an international programme is *Marie Curie Actions*.[126] *Marie Curie Actions* include grants for both early-career researchers and experienced researchers to study in Europe or other participating countries. *Marie Curie Actions* include incoming and outgoing fellowships for researchers to study abroad with the aim of developing research cooperation between countries and research staff exchanges to help strengthen partnerships between universities and research organisations internationally.

While there are numerous opportunities available for doctoral students, postdoctoral fellows and established researchers, beyond the most well-known and publicised grant programs, they can be difficult to find out about. One way to address this issue is to develop portals that collate information about fellowships, scholarships and exchange programs available to allow researchers to easily find out about available opportunities for international collaboration or research mobility.

EURAXESS – Researchers in Motion is one such portal that provides information on different countries, recognition of qualifications, information on applying for visas, work permits, taxation, and daily life as well as a searchable database of jobs, and links to fellowships and other opportunities to collaborate within and outside of Europe.[127] More than 40,000 researchers have registered on EURAXESS and over 9,000 universities and other organisations have registered on the system.[128] The *Australian Researchers'*

Mobility Portal is another example of a portal that has been developed to collate information for researchers planning to work in Australia or planning to move abroad from Australia.[129]

OPPORTUNITIES FOR COLLABORATION

- Programmes to support doctoral and postdoctoral fellow mobility among universities in APEC economies.

- Joint mobility scholarships for international doctoral students and postdoctoral fellows.

- Central database of scholarships available to doctoral students and postdoctoral fellows.

- Encouragement of joint-doctorate programmes between universities in APEC economies.

Research collaborations

Rapid innovations, particularly in the areas of science and technology, are increasingly coming from East Asia, including APEC economies China, Chinese Taipei, Republic of Korea and Singapore.[130] Enhancing the impact of research for the benefit of all APEC economies calls for a significant increase in CBE around research among APEC economies. As Toope et al. note[131] this requires universities not only to recognise collaborative work in decisions about promotion and tenure, but also to incentivise it, something which does not always occur.

One valuable programme is the *Global Knowledge Initiative.*[132] This includes top research universities in 15 APEC economies and links them to major corporations and foundations. The objective of the *Global Knowledge Initiative* is to encourage partnerships between university researchers and organisations in order to develop ideas into products and services. There is a particular focus on developing countries and on processes that involve knowledge transfer. One example is a project which links organisations in Afghanistan and Pakistan to partners in the United States and Middle East to facilitate research training and collaboration which builds capacity in the two target countries.[133]

More targeted institutional linkages which encompass institutions in APEC economies include Universitas 21 (including institutions in 11 APEC economies)[134] and the Association of Pacific Rim Universities (APRU) (including 45 top research institutions in 16 APEC economies).[135] There does not tend to be much emphasis on collaboration with or between less prominent institutions, however, and this may mean that rich possibilities for research collaboration are being overlooked.

APRU is of particular interest since all of its member institutions are in APEC economies. Moreover, its focus is squarely on contributing to greater collaboration among APEC economies. Its key objectives include bringing together the top research universities to "foster cooperation in education and research" and to "contribute to the economic, scientific and cultural advancement of Pacific Rim economies".[136] Research activities in APRU focus on a number of core areas, including global health, sustainability and climate change, ageing, and the brain.[137]

In Latin America, the ENSOCIO-LA project aims to engender cross border research collaboration between Latin American countries (including Chile and Mexico) and the European Union, with a particular focus on climate change, energy efficiency and raw materials.[138] Another initiative which links Latin American countries (including Chile, Mexico and Peru) in research, this time with Canadian institutions is the *Canada-Latin America and the Caribbean Research Exchange Grants program*.[139] This provides grants to bring together researchers who are focusing on knowledge creation and dissemination in development studies.

Another international collaboration is around brain research, bringing together neuroscientists around the world to facilitate research and training (International Brain Research Organization, 2014). This

includes ten APEC economies across Asia, Latin America and North America. The 'One Health' initiative focuses on collaboration around human, environmental and animal health, including in research and teaching.[140] The derivative South East Asia One Health University Network (SEAOHN) commenced in 2011 and incorporates institutions in Indonesia, Malaysia, Thailand and Viet Nam, addressing issues of particular relevance to the region. Its focus is on capacity development through education and training as well as on collaborative research.[141]

Research collaborations can also stem from universities coming together to reach agreement on collaboration. In 2013 nine of the top research universities in China signed an agreement with the Association of American Universities, the League of European Research Universities and the Group of Eight research universities in Australia.[142] The agreement indicates the interest among China's top universities in working on research with colleagues around the world and includes a commitment to the "exercise of academic freedom". Initiatives such as the European Union's 'Framework Programme for Research in the European Union'[143] can help support research collaboration.

OPPORTUNITIES FOR COLLABORATION

- Programmes to support collaborative research projects across APEC economies.

- Working with APRU to expand coverage to encompass all APEC economies.

- Developing a framework for research among universities in APEC economies.

- Supporting research collaborations between less prominent universities.

ENHANCING THE MOBILITY OF EDUCATION PROVIDERS

The previous sections have indicated that the first generation of CBE – the mobility of students and researchers – is well established among APEC economies. There are still a number of strategies which could be implemented to increase the flows of students and researchers from one university to another. In many ways, however, student and researcher mobility has become a well-entrenched characteristic of contemporary university education.

In contrast, the mobility of educational providers is less well-established. This second generation of CBE has much to offer APEC economies. It has considerable value both for those APEC economies whose universities establish themselves overseas and those APEC economies who allow foreign institutions to become part of their university sectors.

> **Benefits of Provider Mobility**
>
> Provider mobility has the potential to generate a number of academic, economic and political benefits.[144] For providers these include: enhanced prestige from raising their international profiles; revenue from student fees; mobility opportunities for home country students; international experience for staff; and relationships with foreign institutions, governments and commercial organisations.[145]
>
> Host countries also benefit in a number of ways. Students who lack the resources to move overseas can gain a degree from a foreign university. Top students do not need to travel to gain an international degree, potentially reducing brain drain. Research opportunities in the host country may be enhanced, with new collaborations and access to new resources. Teaching staff may gain new skills through employment at the foreign provider. Overall, the capacity of the university sector in a host country is enhanced.

For these benefits to be realised, however, CBE must be "accessible, available, affordable, relevant and of acceptable quality".[146] Hence this section examines key elements in facilitating provider mobility, including regulations, barriers to market access and collaboration in cross-border quality assurance systems.

Patterns of provider mobility

What is provider mobility? A common assumption is that it involves an institution establishing a branch campus in a foreign country. In reality there are multiple models of provider mobility.

Before a provider becomes mobile, two important contexts need to align. First, a university needs to consider its internal needs – does mobility fit with its strategy and mission? How do the rewards and risks balance against each other? Is mobility supported by its stakeholders? Are academic staff willing to teach overseas?[147]

Second, the external conditions need to support mobility. The country of origin must have systems in place to enable their universities to venture overseas. The Indian Institutes of Technology are an example of plans for outward mobility being blocked by the national government and legal system.[148]

In addition, the country of destination must be willing to allow for the establishment of foreign providers in their country. Many universities abandon their plans to establish a branch campus in another country as a result of the complex regulations they face in doing so. Some choose to instead collaborate with a local provider and forms of provider mobility such as franchises, twinning arrangements and joint or double degree programmes reflect this approach.[149]

To understand the scale of provider mobility among APEC economies it is important to look at a number of measures. One insight comes from data on branch campuses. Branch campuses vary in their form and function but tend to encompass the following characteristics:

> An entity that is owned, at least in part, by a foreign education provider; operated in the name of the foreign education provider; engages in at least some face-to-face teaching; and provides access to an entire academic program that leads to a credential awarded by the foreign education provider.[150]

Appendix III lists those sixty-three branch campuses which involve a university from one APEC economy hosted in another APEC economy. The list highlights the degree of flux, with six having closed and eight being planned.[151]

United States-China Case Study

The forms of mobility of universities from the United States in China illustrate the diversity of models of provider mobility among APEC economies.[152]

The University of Michigan has established a joint engineering college within Shanghai Jiao Tong University. The curriculum is adapted from the University of Michigan and taught in English, but graduates receive degrees from Jiao Tong University. Students can transfer between institutions for a second degree (Chinese students) or for study abroad (students from the United States).[153]

New York University has opened a campus in Shanghai in partnership with China Normal University. Liberal arts and science subjects are taught to a target cohort of half Chinese students and half from other countries. NYU Shanghai also focuses on research and plans research centres in five academic areas, from neuroscience to social policy.[154]

Duke University has established a Masters in Management Studies programme at Wuhan University in Kunshan, China. Chinese students undertake part of their studies in the United States, and gain a Duke degree. An earlier plan for Duke to establish a fully China-based campus was abandoned due to concerns about student demand and reluctance among United States-based staff to relocate to China for large amounts of time.[155]

Bryant University is planning to establish a campus in Zhuhai in a joint venture with the Beijing Institute of Technology. The institute will target students in China and from South East Asia. Bryant has a longstanding interest in China, with a United States-China Institute and a Confucius Institute on its United States campus. In addition students and faculty travel to China, a major in Chinese is taught and a replica of the Shu Fang Zhai Palace is planned on its United States campus.[156]

Colombia University has established eight centres, including in Beijing, to facilitate the engagement of Colombia students and staff in global issues. Funding is provided to support joint research programmes and study abroad programmes for students from the United States.[157]

George Washington University has established a Confucius Institute on its United States campus, in collaboration with Nanjing University. Plans to establish a branch campus in Beijing were abandoned, partly due to a lack of endorsement by university staff.[158]

Many branch campuses are located in 'education hubs'; sites established by governments to attract foreign providers. These are already common in the Middle East and are increasingly being established in APEC economies. They include Iskandar's 'Educity' and Kuala Lumpur's 'Education City' in Malaysia and the 'Global Schoolhouse' in Singapore. Education hubs can be regarded as places where "critical mass" is achieved[159] and foreign providers may be offered incentives to establish themselves in these locations.[160]

Another form of provider mobility is joint or double degree programmes, in which two or more institutions collaborate to offer a degree with an "integrated curriculum" and "agreement on credit

recognition". [161] These are most common at the Master's level, tend to be taught in English and are often in the disciplines of business management or engineering. China and the United States are two of the top five partner countries. The benefits of joint and double degree programmes include enhanced international visibility and prestige, increased enrolment of foreign students and the development of strategic partnerships.

Other models of provider mobility include: programmes offered through an institution from a third country (for example a British university offers degrees in Pakistan and Sri Lanka through a Malaysian institution); former branch campuses with independent accreditation; independent institutions established by foreign organisations (such as the Swiss-German University of Indonesia); federal universities with multiple campuses established at the same time; and research centres.[162]

Although China is commonly viewed as a destination for foreign providers, Chinese institutions are increasingly being established in other countries. Examples include the Kunming University of Science and Technology College in Thailand and Xiamen University's planned campus in Malaysia.[163]

From the examples provided above it is clear that there are a wide range of models of CBE in place among APEC economies. Many forms of CBE are unique to agreements in place between one university and another, reflecting the needs of both partners and the regulatory context. Expanding provider mobility among APEC economies requires addressing, and overcoming, some of the barriers which are currently in place and which make provider mobility a complicated undertaking.

Regulation of foreign providers

Many APEC economies welcome foreign providers but in doing so they need to guard against sub-standard education provision and to protect their domestic institutions. A wide range of regulatory policies are in place, impacting the delivery and exchange of higher education services.

Research conducted by the Education Network of the APEC Human Resources Development Working Group uncovered a range of situations, from economies which did not allow any foreign institutions to establish (such as Indonesia and Chinese Taipei) to those with no restrictions. Their findings highlighted that "regulatory restrictions on establishment are more prevalent than regulatory restrictions on ongoing operation".[164] Importantly the report notes that regulations are not uniform even *within* countries.

It is clear that regulations around the establishment and operation of foreign providers are closely tied to quality assurance mechanisms, a topic which is addressed in more detail below. The strictest regulations are around a series of key areas: the ability to award degrees; access to public funding; naming of an institution; profit-making status; number of students and fee charging.[165]

With reference to branch campuses, Lawton and Katsomitros[166] similarly note a range of regulatory approaches from countries which do not allow branch campuses at all, to those which have clear and unchanging regulations around branch campuses (the authors provide the examples of Japan, the United States and China), to those whose regulations have undergone revision in recent years (such as Malaysia, Hong Kong China, Russia and Thailand).

The wide range of regulations and their variation from country to country can make provider mobility seem complex. Due to the flux in regulations, the difficulty in ascertaining their current form, variations in interpretation and the overlay of federal, state and local requirements, Lawton and Katsomitros[167] recommend that institutions seek up to date in-country advice. They also emphasise the need to build good relationships with local higher education stakeholders and to exercise 'due diligence' at all stages of the process.

It seems unlikely that there will ever be uniform regulations around foreign providers, but this is an area which university associations may wish to address. A database of regulations would require continuous updating and may not be able to reflect the nuanced regulations in place in many locations. Nevertheless, a database of regulatory authorities in APEC economies would make finding up to date information on local regulations much easier.

OPPORTUNITIES FOR COLLABORATION

- Development of guidelines on the creation of education hubs.

- Preparation of a central digital database of regulatory bodies in each APEC economy, with links to key government resources and sources of advice.

- Efforts to improve the consistency and transparency of regulatory processes among APEC economies.

Implementing the General Agreement on Trade in Services

One of the key set of guidelines framing CBE comes from the General Agreement in Trades in Services (GATS).[168] Specifically, Article 6 of the eighth GATS which states that restrictions should be both "based on objective and transparent criteria, such as competence and the ability to supply the service" and "not more burdensome than necessary to ensure the quality of the service".

As Knight[169] highlights, countries will increasingly be required to show that they treat local and foreign providers equitably. As of March 2014, eight APEC economies have made GATS commitments to higher education.[170] These commitments are shown in Table 2.

Table 2: GATS education commitments by APEC economy, March 2014

APEC Economy	Level of education				
	Primary	Secondary	Higher	Adult	Other
Australia		✓	✓		✓
China	✓	✓	✓	✓	✓
Japan	✓	✓	✓	✓	
Mexico	✓	✓	✓		✓
New Zealand	✓	✓	✓		
Russian Federation	✓	✓	✓	✓	
Chinese Taipei		✓	✓	✓	✓
Thailand	✓	✓		✓	
United States				✓	✓
Viet Nam		✓	✓	✓	✓

GATS is valuable in efforts to enhance the mobility of education providers as they address restrictions on the entry or foreign providers. Knight[171] lists a series of restrictions covering elements as diverse as the import of educational materials, the export of currency, the number of students, direct investment, the nationality of staff, and franchise arrangements. According to Knight there is particular controversy around key areas in the GATS including the competitive and commercial status of providers, the ability of a country to maintain its own quality assurance and accreditation procedures and the concept of progressive liberalisation.

Knight[172] highlights four key areas in relation to foreign higher education providers which institutions and governments need to address in response to GATS: registration, quality assurance, accreditation and recognition of qualifications. The UNESCO/APQN toolkit[173] highlights key features of regulation and types of regulatory frameworks. The varied functions of regulatory frameworks listed include the ability of the government to safeguard quality, the supply of education, to collect information and to provide information to stakeholders[174]. Types of regulatory frameworks include: those with tighter and looser

control; those which allow self-approval and self-accreditation versus those which require external approval and accreditation; those with enforced regulation versus an incentive system; and those with a single system for both domestic and cross-border institutions versus those with a dual system[175].

The mobility of education providers references the elements of the GATS which refer to the "commercial presence" of one member in the territory of another. Countries often set restrictions on commercial presence such as difficulties in gaining recognition as a degree granting institution and limits on investment. While balancing the need to accord a degree of protection to domestic providers, the GATS recommends that a country: shall afford adequate opportunity for any other Member to demonstrate that education, experience, licenses, or certifications obtained or requirements met in that other Member's territory should be recognised (Article 7, Paragraph 4:2).[176]

In reality, much provider mobility occurs not through outright recognition of the institution but through collaboration with local providers. This occurs in a number of forms, such as franchise arrangements between foreign institutions and local providers, collaborations between institutions in more than one country such as joint degree programmes, arrangements in which students can articulate from one provider to another through credit recognition, and distance learning modes.[177] The latter is set to grow significantly in coming decades.

OPPORTUNITIES FOR COLLABORATION

- Encouraging leaders of all APEC economies to endorse higher education provisions in GATS.

- Use of diploma supplement to degrees which provide information on the qualification, the institution it was earned from the higher education in which it sits.

Collaboration in the quality assurance of higher education

Many APEC economies have their own regulatory framework to ensure that foreign providers and programmes are of high quality. For example, in 2012 Viet Nam strengthened its regulations on foreign providers with 'Decree 73', responding to concerns about quality control amidst a rapid proliferation of overseas institutions.[178] Hong Kong, China has registration requirements and criteria laid out in the 'Non-local Higher and Professional Education (Regulation) Ordinance Cap. 493'[179] which establishes stringent criteria for foreign providers. A number of major criteria establish the requirements of foreign providers, including that:

- the institution must be a recognised non-local institution
- effective measures must be in place to ensure that the standard of the course offered are maintained at a level comparable to a course leading to the same qualification conducted in its home country
- this comparability in standard must be recognised by the institution, the academic community and the relevant accreditation authority (if any) of the home country.

Exceptions are in place for courses which are delivered in collaboration with local providers, courses which are delivered solely by a local provider, and courses which are purely delivered in a distance learning mode (with no physical presence of an overseas institution). The latter exemption is made to balance the protection of consumers and the avoidance of restricting freedom of expression. Overall, the Ordinance used in Hong Kong, China is a good example of a regulatory framework to balance the desire to allow foreign providers to register, opening up opportunities for local and foreign students alike, while protecting the quality of educational provision that takes place within its borders.

While each country providing higher education has one or more quality assurance (QA) agencies, not all of these include foreign providers in their remit, particularly if delivery is virtual rather than physical. As the Asian Development Bank suggests:

Weak QA efforts are attributed to the speed at which private, for-profit HEIs have proliferated: QA organizations have not been able to keep up with the workload. However, another reason is that the national regulatory frameworks and legislation have not been fine-tuned to assess the quality of cross-border education.[180]

Some individual APEC economies, including Australia, China, Malaysia and New Zealand, do have quality assurance regulations which extend to the cross-border activities of their own institutions. An example is the Tertiary Education Quality and Standards Agency in Australia which has developed "a rigorous approach to offshore provision including overseas site visits where necessary".[181] Even when quality assurance encompasses offshore delivery it may fail to accommodate virtual providers. Given the limitations of many QA regimes around CBE among APEC economies a major means to facilitate greater CBE would be collaboration on enhancing QA both within and across APEC economies. This can be done on a bilateral or regional level.

> **Regional approaches to quality assurance**
>
> One example is the quality network of the ASEAN University Network (AUN) (including APEC economies Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam) which trains and certifies AUN assessors who then conduct reviews at both the programme and institutional levels. This collaborative approach supports not only quality improvements but also mobility of students and staff.
>
> Since 2008 this has been supplemented by the ASEAN Quality Assurance Network (AQAN) which brings together quality assurance agencies and education ministries in 11 countries, including seven APEC economies.[182] The framework is to focus on a number of areas including "eight levels of complexity of learning outcomes, expressed as descriptors" including knowledge and skills, their application and responsibility and accountability.[183] The framework remains at a very preliminary stage, however.
>
> In another part of APEC, Alfa Puentes has enabled greater collaboration among the higher education systems in a number of Latin American countries, including the development of a qualifications framework in Central America and the enhancement of mobility between a number of countries. The Andean region (which includes the ASEAN economies of Chile and Peru) is engaged in close cooperation on quality assurance.[184] This includes a pilot joint evaluation of undergraduate degree programmes. Once again, cooperation around the framework is in an early stage.

Examples of bilateral agreements are those between Australia and partner countries. The Tertiary Education Quality and Standards Agency in Australia has memoranda of cooperation with the Council for Private Education in Singapore and The Hong Kong Council for Accreditation of Academic and Vocational Qualifications and a memorandum of arrangement with the Malaysian Qualifications Agency.[185]

The development of both the ASEAN quality assurance framework and activities under the umbrella of Alfa Puentes have been supported by the European Union (EU). Given the high degree of integration within the EU it will come as no surprise that the EU has an advanced common reference framework, known as the European Qualifications Framework (EQF), which enables the comparison of not only national qualification systems but also their frameworks. The role of the EQF among European countries is to serve:

> as a translation device to make qualifications more readable and understandable across different countries and systems in Europe, and thus promote lifelong and life-wide learning, and the mobility of European citizens.[186]

One example of cross-border sharing of resources around quality assurance comes from the Commonwealth of Learning (COL); an intergovernmental organisation established by the Commonwealth Heads of Government to enhance collaboration around distance education, with a focus on sharing resources and technologies.[187] Seven APEC economies are members of COL. COL focuses on the development of human resources to achieve economic and social development. One of COL's roles is to support quality assurance of higher education institutions and the COL Review and Improvement Model has been developed to assist with quality audits.[188]

The role of university associations in shared approaches to quality assurance is to work actively with their equivalent organisations in other countries to develop recommendations for governments on how to enhance QA. These should include policies to encompass all forms of cross-border education including that offered by virtual organisations. University associations themselves can take a lead role in collaborating to develop transparent, consistent and informative descriptions of learning outcomes from all university courses which can be applied across all APEC economies.

OPPORTUNITIES FOR COLLABORATION

- Expansion of quality assurance cooperation to assist all APEC economies to have suitable coverage of foreign providers, offshore campuses and virtual universities.

- Development of APEC quality assurance network to encompass existing quality assurance networks among APEC economies.

- Development of transparent, consistent and informative descriptions of learning outcomes.

- Creation of a university review and improvement tool and training and certification of cross-border quality assurance assessors.

Recognition of qualifications

One of the greatest barriers to CBE is the lack of recognition of qualifications between institutions.[189] This affects both student and provider mobility and is thus a key issue in facilitating CBE. As increasing numbers of students gain qualifications from overseas institution, whether through international study or through attending a foreign provider in their home country, there is an increased need to ensure that their qualifications are duly recognised.[190] The OECD recommends that procedures for recognition of qualifications should be made "more transparent, coherent, fair and reliable".[191]

Currently there is no global system of qualifications recognition; however there are regional initiatives. Representatives from many APEC economies have endorsed UNESCO's Regional Convention on the Recognition of Qualifications in Higher Education, including Australia, China, Republic of Korea, Russian Federation and the Philippines.[192] This convention stipulates that ratifying parties will recognise higher education qualifications achieved in other countries unless "a substantial difference" exists.

UNESCO Tokyo Convention on Qualifications Recognition

An important international development around qualifications recognition is UNESCO's Tokyo Convention, which was signed by nine nations on 26 November 2011.[193] The Tokyo Convention requires signatories to ensure that the "procedures and criteria used in the assessment and recognition of qualifications are transparent, coherent, reliable, fair and non-discriminatory" and that the focus is on the "knowledge and skills achieved". If qualifications are not recognised then full information must be given on why, as well as the requirements (e.g. of further study) to achieve recognition.

As a general rule, the Convention states that:

> Each Party shall recognise, for the purpose of access to each of its higher education programmes, the qualifications issued by the other Parties that meet the general requirements for access to these respective higher education programmes, unless a substantial difference can be shown between the general requirements for access in the Party in which the qualifications were obtained and those in the Party in which recognition of the qualifications is sought.
>
> The Convention places an onus both on recognition bodies and also on degree issuing institutions, which are required to provide adequate information on the skills and knowledge which students have achieved to enable a recognition body to make a correct judgement. In addition, education systems are required to provide information to external parties on the context in which the degree was earned. This includes an account of the different types of institutions which make up the higher education sector, a list of accredited institutions and their ability to award degrees and details on the quality assurance regime in place.

One approach is to develop a 'diploma supplement' for higher education students to accompany their degree certificate.[194] This has been investigated for use between APEC member economies with endorsement of a voluntary, non-binding template and agreement with principles around its use. A scoping study concluded that a staged approach to implementation which complemented local models and involved institutions in its development was desirable.

Another approach is the development of national qualifications frameworks (NQFs) which is one step in facilitating international recognition of qualifications and student and labour mobility. NQFs provide descriptions of the levels of qualifications, comparisons of different qualification levels, and learning outcomes achieved at different qualification levels.[195] The "international recognition of an economy's qualifications can be enhanced by the transparency of qualifications to which an NQF can contribute".[196] A number of APEC economies currently have NQFs, including Australia; Hong Kong, China; Malaysia; New Zealand; Singapore; Thailand and the Philippines. NQFs are under development or consideration in other economies.[197]

Developing regional qualifications frameworks are another step forward in enhancing the ability for qualifications to be recognised across borders. The European Qualifications Framework (EQF) is one example of a cross-border qualifications framework that aims to increase the transparency of qualifications among European countries and highlight similarities and differences between qualifications between countries.[198] Many European countries have revised their NQFs to align them with the qualification levels referenced in the EQF to help improve the transparency of their qualifications and allow for a better understanding of equivalency.

Most APEC economies support the development of a regional qualifications framework that would facilitate the international recognition of qualifications, improve transparency of qualifications and enhance the mobility of students and workers among APEC economies.[199]

OPPORTUNITIES FOR COLLABORATION

- Development of a shared and transparent system of qualifications recognition.
- Shared approach to national qualifications frameworks in each APEC economy.
- Mutual recognition of qualifications frameworks.
- Development of an APEC qualifications framework

BEYOND MOBILITY – ENHANCING CROSS-BORDER EDUCATION WITHOUT MOVEMENT

The previous sections have sketched the key patterns of CBE relating to students, researchers and providers. They have indicated the scope of current CBE patterns, their benefits to stakeholders and barriers to their further expansion. For those with an interest in CBE these are likely to be familiar themes, and many of these forms of first and second generation CBE have developed over a number of decades.

In an inter-connected world, however, the 'mobility' element of CBE is beginning to be interpreted in new ways. Rather than viewing CBE almost entirely in physical terms, there is increasing acknowledgement of the opportunities to build strong transnational connections between institutions, researchers and students without the need for any actual movement. This is important as it opens up opportunities for expanding the benefits of CBE to all stakeholders. Physical mobility has limitations, particularly in terms of the resources is requires, and this inevitably leads to inequalities:

- mobile students, and those who attend foreign institutions in their home country, tend to come from elite backgrounds, with the majority of students unable to access these opportunities
- mobile researchers must be able to leave behind home responsibilities, disadvantaging those who tend to bear the majority of household and caring responsibilities, notably women
- mobile institutions must have the resources to invest overseas, limiting this option to wealthier institutions, with most institutions unable to afford mobility.

In contrast, CBE without mobility opens up the significant value which CBE can offer to a much greater population. There are a number of ways in which non-mobile CBE can occur but this section focuses its attention on teaching resources, looking at what has been referred to as the third generation of CBE.[200] A consideration of Open Educational Resources (OER) and Massive Open Online Courses (MOOCs) highlights their relevance for collaboration in CBE among APEC economies, particularly as the degree of innovation in CBE is expected to grow in the future.[201]

Open Educational Resources

University curricula and teaching resources tend to be developed by individual university departments or individual staff members. This approach enables a specific focus on local issues but leads to inefficiencies and prevents the sharing of knowledge and expertise. One response is to promote the sharing of educational resources, under the umbrella of OER. OER can be defined as:

> teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution.[202]

With a focus on teaching and learning resources, OER can refer to teaching materials (everything from full courses to short modules), learning resources (from textbooks to a range of other media), assessment materials and the tools to make these available.[203]

OER in university education has been under discussion since the Massachusetts Institute of Technology commenced work on its open-courseware platform in 2001.[204] There has been much important evolution since this time. While OER tends to be interpreted wholly in the context of distance or e-learning, this is not an accurate reflection of its value. As McGreal[205] points out, OER resources can also be used in traditional classrooms in their printed form and can be 'mixed or mashed' with other resources to suit learner needs.

While OER has been part of the university landscape for more than a decade, its uptake by universities is variable.[206] Recent research across universities in 29 countries found that fewer than a quarter are involved in the use or development of OER.[207] As Figure 6 indicates, publication of OER is most common, with collaborative development of OER with other institutions next most frequently reported. In contrast, 60 per cent of respondents reported that they did not deliver any courses which were solely based on OER[208]. Perhaps unsurprisingly, those universities with an existing focus on distance education have been among the early adopters.

Figure 6: Uptake of OER[209]

The interest of universities with a background in distance education is due to their recognition that OER can engage part of the population in university education which is unlikely to participate in more formal activities. But a focus on distance education can distract from the fact that all universities can benefit from the "low cost and no-frills model" of OER, using it to help offset the rising cost of university education.[210]

OER can be described as "transformational, inclusive and enabling" for universities.[211] The benefits for universities include improvements to course design, curricula and teaching and learning resources; opportunities for students to engage in interactive sessions with students at other institutions; enhanced assessment tools and, perhaps most importantly, enabling university collaborations across and between countries.[212] OER can also help educational institutions respond to contemporary forces and collaborate on new forms of learning.[213]

OER examples

One of the leading OER programmes is the Commonwealth of Learning's (COL) Open Educational Resources model.[214] This initiative "promotes the creation, sharing and adaptation of learning materials that anyone can freely use for teaching, learning, development and research". A network of higher education institutions across Africa, Asia, North America and the Pacific (including a number of APEC economies) collaborate to provide resources to each other. Another COL initiative is the 'Virtual University for Small States of the Commonwealth', with courses including disaster management. All courses are open access with resources available electronically. Materials are developed in cross-border workshops and used by institutions in a range of economies.

Another example of OER is the OpenLearn initiative of the United Kingdom's Open University with a vision of "free online education, open to anyone, anywhere in the world".[215] The Open University uses the Creative Commons licence for free online course content, meaning that materials can be freely reused but not for commercial purposes.[216] The Open University is very explicit about what its materials can be used for and the conditions of their use, stating that

"you may translate, modify, print, network, reformat or change the materials in any way providing that you meet the terms of the licence" which are that the use is non-commercial, that the Open University and original authors are cited, and that any original or derivative works must be made available under the same terms.

Beyond the benefits which OER can generate for university communities, they can also help universities reach out to potential students. Non-enrolled university students who access OER may do so simply out of personal interest and in this way OER is an important component of lifelong learning. Others use OER to prepare themselves for university studies.

Facilitating the development and use of OER

The benefits of OER for universities, students, teaching staff and the broader community cannot occur without universities investing in OER.[217] Resources and funding are required for activities such as the development of OER and their adaptation (including translation where necessary) to suit the local context and creating OER for other universities to use.

Quality control is an important element in the development and use of OER. Universities can only use OER to "advance their public service role" when the courses and materials they make available for use by external stakeholders are of good quality.[218] It is important that universities have rigorous internal quality assurance processes to approve materials before they are released as OER. At the same time, it is not enough for university teaching staff to simply access OER and use them with students. Instead, equally rigorous processes are required to approve materials which have been adapted from OER prior to their use in teaching and learning.

Academic staff can be engaged in OER through acknowledgement of the new pool of resources which are available for them to use. This is valuable for all teaching staff and particularly those who are teaching highly diverse groups of students with diverse needs. Using OER can help teaching staff to enhance social inclusion in their teaching, for example by maximising intercultural learning and acknowledging inequalities.[219] Universities may also wish to incentivise the creation of OER, particularly as research indicates that "creating OER leads to higher emotional engagement than simply using OER".[220] University associations are well placed to discuss a range of strategies to support OER with governments and to encourage innovative initiatives.

OPPORTUNITIES FOR COLLABORATION

- Establish policies which promote and enable the sharing of university curricula and teaching resources among universities.

- Develop shared agreements around open intellectual property licences which allow for free use, adaptation and distribution of resources.

- Share expertise around the development and use of OER through training and knowledge transfer, with a focus on languages other than English.

- Develop quality assurance processes for OER.

- Create strategies to help universities assist disadvantaged students prepare for university.

- Establish online platforms which enable interactive student activities between countries.

- Support OER infrastructure in APEC economies with modest resources.

MOOCs

One of the most talked about developments in the university sector in recent years has been Massive Open Online Courses (MOOCs). A MOOC can be defined as something which:

> integrates the connectivity of social networking, the facilitation of an acknowledged expert in a field of study, and a collection of freely accessible online resources. Perhaps most importantly, however, a MOOC builds on the active engagement of several hundred to several thousand "students" who self-organize their participation according to learning goals, prior knowledge and skills, and common interests. Although it may share in some of the conventions of an ordinary course, such as a predefined timeline and weekly topics for consideration, a MOOC generally carries no fees, no prerequisites other than Internet access and interest, no predefined expectations for participation, and no formal accreditation.[221]

MOOCs range in form and contents but the most well-known ones tend to be designed by university teaching staff and to have highly structured curricula, recommended readings, student activities and assessments. In this way, they have a similar shape to traditional university courses. Where they differ is in who can access them and how student participation in them is credited.

There are a range of types of MOOCs: xMOOCs (traditional MOOCs with a core curriculum and key professor); cMOOCs (more like a graduate seminar where course materials stimulate discussions among participants); DOCCs (distributed online collaborative courses in which core materials are distributed in multiple ways across multiple institutions); BOOCs (xMOOCs with small groups of students); SMOCs (synchronous massive online courses with live lectures broadcast on the internet); SPOCs (small private online courses with a high degree of teacher student interaction); and Corporate MOOCs (specifically designed for employee training).[222] Siemens also refers to 'quasi-MOOCs' which include web tutorials.[223]

At present it is estimated that more than five million students around the world are enrolled in MOOCs.[224] Current figures for MOOCs include that the average signup rate is 33,000 users per course, that 88 per cent of users are male, that 65 per cent of users have at least a Bachelors degree and that 50 per cent of users are employed full time [225](Edutech for Teachers 2014). The most prominent providers of MOOCs include Coursera (including courses from Stanford and Princeton Universities) and edX (including courses from Harvard and MIT). In most cases the only requirement to sign up for a MOOC is access to the internet. This immediately opens up educational opportunities to all parts of the world, satisfying previously unmet demand.

MOOCs can be regarded as a valuable stimulus for quality in teaching and learning in universities around the world. For example with reference to those MOOCs which include courses from universities such as Harvard and MIT, Marshall[226] suggests that "by giving away course materials and access to basic e-learning systems these institutional MOOCs are establishing a minimum threshold of quality that must be substantially exceeded by other organizations". At present few MOOCs provide participants with formal credits but this is being overcome. For example Coursera uses a 'signature track' in which participants pay to receive verified certification at the end of a course. In addition, accreditation bodies have begun to review MOOC courses with consideration of recognising their completion and being able to utilise this as a credit towards traditional degrees.[227] The American Council on Education has endorsed a number of MOOCs for credit, including courses offered by Duke University, the University of California and the University of Pennsylvania.[228]

Due to the early stage of their evolution and the fact that they have arisen out of initiatives in the United States, MOOCs are dominated by providers and courses from the United States, and by the English language. This is changing, however, with newer MOOC providers including Miríada X (with courses offered in Spanish by universities in Spain and Latin America) and XuetangX (offering courses in

Mandarin).[229] At the same time, United States based MOOC providers are increasingly offering courses from around the world.

Coursera

Coursera is an example of a MOOC provider which has an international focus, emphasising collaborations with universities around the world. Universities from APEC economies which provide courses through Coursera include:[230]

- Australia - The University of Melbourne, University of New South Wales, University of Western Australia

- Canada - The University of British Columbia, University of Alberta, University of Toronto

- China – Fudan University, Peking University, Shanghai Jiao Tong University

- Hong Kong, China - The Chinese University of Hong Kong, The Hong Kong University of Science and Technology

- Japan - The University of Tokyo

- Korea - Advanced Institute of Science and Technology

- Mexico - Tecnológico de Monterrey, Universidad Nacional Autónoma de México

- Russia – Higher School of Economics, Moscow Institute of Physics and Technology, Saint Petersburg State University

- Singapore - Nanyang Technological University, National University of Singapore

- Chinese Taipei - National Taiwan University

- United States - Columbia University, Duke University, Princeton University, Stanford University

A large proportion of MOOC users are also from the United States, but again this is changing. Current data indicates that MOOC users are found in 190 countries and that 7 per cent are in India, 2.5 per cent in Russia and 2 per cent are in China.[231] The introduction of MOOC apps for mobile phones and iPads broadens the potential market of students to include those who do not have access to computers.

Among APEC economies there is enormous potential to support the development of MOOC offerings which enable multi-directional exchanges of knowledge from universities in one APEC economy to those in another. As Aguaded-Gómez[232] argues, "sustainable MOOCs should aim to promote pedagogical models based on multiculturalism, the diversity of contexts, multilingualism, the synthesis of local and global cultures".

Achieving multi-directional MOOCs in the APEC region may require knowledge transfer from universities and economies familiar with MOOCs to those who have yet to design and deliver them, but the pay-off could be immense. Developing collaborations involving universities in more than one country to develop MOOCs in areas which benefit from a multi-perspective approach would be even more valuable, enhancing ties between universities and opening up their expertise to wide numbers of users.

OPPORTUNITIES FOR COLLABORATION

- Share knowledge around the development and implementation of MOOCs.

- Develop policies around quality assurance and credit recognition of MOOCS.

- Collaborate around developing MOOCs which promote global approaches to common issues and challenges among APEC economies.

APEC Leaders' Declaration on Promoting Cross-Border Education Cooperation, 8-9 September 2012[233]

All APEC economies stand to gain from enhancing collaboration on cross-border education. Many developing economies in the Asia-Pacific region are rapidly moving into higher value-added manufacturing and knowledge intensive industries driven by innovation. Access to a wide range of quality higher education services is critical for sustainable growth on this development pathway. The APEC region also contains some of the world's largest exporters and consumers of education services. Facilitating the flow of students, researchers and education providers, and reducing the transaction costs involved provides opportunities for a significant expansion of cross border education services to the benefit of all economies.

Increasing cross-border student flows will strengthen regional ties, build people to people exchanges, and promote economic development through knowledge and skills transfer. High quality cross-border education equips students with the 21st century competencies they need for their full participation in a globalized and knowledge based society.

Therefore, we, the APEC Leaders, agree that strengthening collaboration among APEC economies is crucial for facilitation of the work on specific policies, including those relating to quality assurance, accreditation, cross-border exchange and data collection. Such work will have a significant impact on the education sector in APEC economies. Important steps were made by economies in 2012 to enhance practical and sustainable educational cooperation, exploring a number of proposals for cross border education within the region as well as research, information, and knowledge sharing. We encourage further development, on a voluntary basis, consistent with individual economies' circumstances, of cross-border education cooperation and facilitation of exchange in education services within APEC in the following areas:

a) Enhancing the mobility of students. This may be achieved, but not limited by the following:
- identifying, comparing and implementing best practices among APEC economies for course accreditation and quality assurance systems, as well as targeted capacity building projects;
- developing models to guide reform and implementation of good regulatory practices, drawing on case studies of domestic education providers;
- exploring ways to increase the transparency of student visa requirements.

b) Enhancing the mobility of researchers. This may be achieved, but not limited by the following:
- developing existing academic exchanges and joint research activities between and among universities in APEC economies;
- exploring ways to improve the mobility of the academic workforce.

c) Enhancing the mobility of education providers. This may be achieved, but not limited by the following:
- exploring ways to enhance transparency of regulation of foreign providers and to remove unnecessary barriers to market access;
- mapping of existing regulations for the establishment of foreign providers;
- benchmarking and identifying best practices in APEC on quality assurance systems.

d) Enhancing the existing network of bilateral agreements. This may be achieved by, but is not limited by the following:
- examining issues related to the flexible design and delivery of educational content (such as online courses) among APEC economies;
- enhancing availability of data on educational programs in APEC economies.

We instruct Ministers and officials to take forward these priorities on cross-border student, researcher and education provider mobility to develop cross-border educational cooperation in the APEC region while taking into consideration the circumstances of individual economies.

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Appendix II
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APEC Student Movements, 4 March 2014[234]

APEC Economy	Number of internationally outbound students
Australia	10,330
Brunei Darussalam	3,208
Canada	45,090
Chile	8,850
People's Republic of China	562,889
Hong Kong, China	32,842
Indonesia	34,067
Japan	40,487
Republic of Korea	126,447
Malaysia	53,884
Mexico	25,836
New Zealand	4,594
Papua New Guinea	1,032
Peru	15,507
The Philippines	11,748
The Russian Federation	49,585
Singapore	20,030
Chinese Taipei	No data available
Thailand	26,233
The United States	51,565
Viet Nam	47,979
Total	**1,172,203**

APEC Branch Campuses, 4 March 2014[235]

Institution Name	Host Country	Home Country	Status
Carnegie Mellon University	Australia	United States	
Charles Sturt University	Canada	Australia	
DeVry University	Canada	United States	Closed
Fairleigh Dickinson University	Canada	United States	
New York Institute of Technology	Canada	United States	
Potsdam, The State University of New York	Canada	United States	Closed
University of Phoenix	Canada	United States	Closed
City University of Seattle	Canada	United States	
Monash University	China	Australia	
University of Technology,Sydney, Australia	China	Australia	
Lancaster University	China	Malaysia	
Seoul Sunong Trading Company, Korea	China	Korea	
University of Ulsan, Korea	China	Korea	
Baruch College, City University of New York	China	United States	
Carnegie Mellon University	China	United States	
Duke Kunshan University	China	United States	Planned
Florida International University	China	United States	
Fort Hays State University	China	United States	
Hult International Business School	China	United States	
Johns Hopkins University	China	United States	
Kean University	China	United States	
Missouri State University	China	United States	
New York Institute of Technology	China	United States	
New York University	China	United States	
Webster University	China	United States	
Webster University	China	United States	
Webster University	China	United States	
University of Western Ontario	Hong Kong, China	Canada	
Savannah College of Art Design	Hong Kong, China	United States	
McGill University Desautels Faculty of Management	Japan	Canada	
Lakeland College	Japan	United States	
Temple University	Japan	United States	
Curtin University of Technology	Malaysia	Australia	
Monash University	Malaysia	Australia	
Royal Melbourne Institute of Technology	Malaysia	Australia	Closed
Swinburne University of Technology	Malaysia	Australia	
Xiamen University	Malaysia	China	Planned
The Management Development Institute of Singapore	Malaysia	Singapore	Planned
Alliant International University	Mexico	United States	
Endicott College	Mexico	United States	
Arkasas State University	Mexico	United States	Planned
University of Phoenix	Mexico	United States	Closed
Central Queensland University	New Zealand	Australia	

Curtin University of Technology	Singapore	Australia	
James Cook University	Singapore	Australia	
University of New South Wales	Singapore	Australia	Closed
University of Newcastle	Singapore	Australia	
Shanghai Jiaotong University	Singapore	China	
Baruch College, City University of New York	Singapore	United States	
Culinary Institute of America	Singapore	United States	
Digipen Institute of Technology	Singapore	United States	
New York University Tisch School of Arts	Singapore	United States	
The University of Chicago Booth School of Business	Singapore	United States	
University of Nevada, Las Vegas	Singapore	United States	
George Mason University	Korea	United States	Planned
State University of New York - Stony Brook	Korea	United States	
University of Nevada, Las Vegas	Korea	United States	Planned
University of Utah	Korea	United States	Planned
Baruch College, City University of New York	Chinese Taipei	United States	
Beijing Language and Culture University	Thailand	China	
Webster University	Thailand	United States	
Huaqiao University	United States	China	Planned
Royal Melbourne Institute of Technology	Viet Nam	Australia	

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