

Skill Development through MOOC for Inclusive and Sustainable Development: A Review of Policies in the Asian Commonwealth Countries

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Abstract

Economic growth of the Commonwealth countries in Asia depends on productivity and the availability of the skilled human resources. About 70 per cent of the Commonwealth's two billion citizens belong to South Asia. Skilled human resources are crucial factor for inclusive growth and achieving sustainable development goals. Hence, Skill development policies and practices of these nations occupy a dominant place in sustainable development discussion. Massive Open Online Courses (MOOC) can play crucial role for enhancing skills of existing workforce and help build the capacity of the young people to be prepared with appropriate skills for the job market. For inclusive growth and sustainable development, Asian Commonwealth countries need to respond to the challenges of knowledge economies. Based on secondary sources of information this paper (a) analyses skills challenge faced by Commonwealth countries in Asia; (b) reviews existing policies for skills development and use of MOOCs for strengthening skills, and (c) discusses strategic approaches to skills development through MOOC for skills development. Analysing the published literature, it presents an overview of public policy on skills development and use of MOOCs for skills development in Asian Commonwealth countries.

Introduction

Skill development is an investment in human capital, which enhances labour productivity and higher levels of output. The structure and pattern of skill training has to be purposefully re-oriented to join together with the projected future pattern of employment requirements. Most of the countries across the globe have given due importance to Vocational Education and Training(VET) to provide educational opportunities and improve individual employability, reduce gaps between demand and supply of skilled human resource.

Whether to vocationalise or not has been a matter of debate for long (Foster, 1965;Psacharopoulos, 1987; Gaba, 2006). Foster (1965) stated that vocational education was considered by students and their parents as second rate education which leads to lower status employment. Tilak (2002) on the other hand argues that VET creates opportunity for self-employment particularly to those who belongs to rural society. It has also been argued that academic stream is more flexible because it helps an individual to change jobs whereas vocational stream is more specific for particular vocation or job. Over a period of time, due to rapid developments and progress in the use of Information and Communication Technologies(ICT) in various jobs, the demand for skilled personal increased manifold. As a result of which on-the-job workforce requires further training for enhancing their existing skills. Especially the emergence of Massive Open Online Courses (MOOCs) that uses the power of the internet technologies to provide just-in-time training at speed and scale has created new opportunities and offer the potentials to offer skills courses for millions at low cost.

In this paper, we present a desk review of public policies related skills development and MOOCs in the eight Commonwealth countries of Asia through available information on the Internet, and presents an overview of current status, problems and prospects.

Policies for Skills Development and MOOCs in Asian Commonwealth Countries

Policies of each Asian Commonwealth countries play a major role in skills development. Despite common problems and priorities, the skill development policy of each country needs to be country specific. The policy depends on the nature of the demographic, economic conditions, and availability of the human resources, and future job avenues to be created by the government. Hence, the following section of the paper discusses in brief policy profile of the Asian Commonwealth countries – Brunei, Bangladesh, India, Malaysia, Maldives, Pakistan, Singapore, and Sri Lanka.

Bangladesh

Bangladesh ranked 142 in the Human Development Index 2015 with 158.5 million population. Majority of them belongs to rural areas. The youth literacy rate (15-24yrs) of Bangladesh is 79.9 per cent and public expenditure on education as percentage of GDP is 2.2 per cent. The structural distribution of employment data show that 48.1 per cent people are employed in primary sector followed by secondary sector (37.4%) and tertiary sector (14.5%). The labor force participation rate is 70.8 percent and unemployment rate is 4.5 per cent (UNDP, 2015)

The National Education Policy (2010) emphasized the role of skilled workforce in national development (MOE, 2010). It emphasized skill education after class 8, use of information and communication technologies, availability of learning resources in Bangla language, amongst many other focus to improve the quality of VET. The National Skills Development Policy (NSDP) was developed in 2011 with the support of the European Commission and ILO. The focus of the policy is help Bangladesh achieve its target of attaining middle income status by 2021. Skill training programmes are delivered by various Ministries, formal and non-formal skills training institutions, industries and community participation, private institutions, NGOs etc. The National Skills Development system in Bangladesh¹ is comprised of the following:

- National Skills Development Council as the apex body of skills development responsible for the overall setting up of the National Skills Development Agenda.
- There are 15 Industry Skills Councils organised along sectoral lines to provide specific advice on occupations and skills priorities.
- Centres of Excellence: as one stop resource centres to develop, support and strengthen knowledge-base for increased workforce productivity, national quality standards, and demand-based approach to training.
- Implementation of a National Skills Data System to capture and manage quality data on the supply and demand for skills. National Technical and Vocational Qualifications Framework (NTVQF): A nationally consistent approach to market driven qualifications. It aims to support the skill development pathways that provide access to qualification and assist people to easily transition from training into work. Currently, framework recognises 2 pre-vocational levels and six vocational level skills with job descriptors.
- NTVQF-Certified TVET Trainers & Assessors: A nationally consistent assessment and certification system for trainers and assessors providing competency-based training to trainers and assessors.
- Developing job specific national competency standards.

Since the revision of the scheme in 2015, the enrollment in VET programmes starts rising. BANBEIS (2016) data reveals that 872,658 students are enrolled in 5790 technical and vocational education institutions. Majority of these institutions (96%) are privately managed and only 4% are public managed. Gender-wise distribution show that, total girls students are 208,874 (23.94%) of total enrolment.

Brunei Darussalam

Brunei ranks 31 out 178 countries in the Human Development Index (UNDP, 2015), with a total population of 0.4 million. With youth literacy rate (15-24 yrs) of the country at 99.7percent, public expenditure on education (% of GDP) at 3.8 percent; labor force participation rate (% ages 15 & older) 64.0 per cent, and unemployment rate (% of labor force) at 1.7 percent, Brunei is second to Singapore in the Human Development Index amongst the Asian Commonwealth countries.

The Ministry of Education Strategic Plan 2012-2017 aims to prepare “youth for employment and achievement in a world that is increasingly competitive and knowledge-based” (MOE, 2012, p.4). In 1991, Brunei Darussalam Vocational and Technical Education Council (BDTVEC) was established as a national awarding body for skills qualifications in Brunei. At present, TVET is implemented through formal system at two levels i.e. secondary and

post-secondary. At secondary level, students are able to acquire basic technical and vocational skills only joining the applied programme stream. (Ebuil, Othman, Hj Mod Nor, Ahmad, & Hj Masud, 2016). There are seven VET institutes in the country networked through the Technical and Vocational Education Student Information System. The BDTVEC follows a 3-tier qualifications frameworkⁱⁱ. Learners in the secondary education can choose to take skills certificate at level 1. Skills certificate level 2, 3, Diploma and Advanced Diploma level training are awarded by BDVETC. The tier three at degree level is awarded by the Institute of Technology Brunei and the University of Brunei. Transferable life-skills are part of all VET programmes in Brunei (Paryono, 2014). These are developed as per the new education system (SNP2) that promotes 21st century skills.

Brunei has been an active in supporting skills development in other countries in the regionⁱⁱⁱ. Since 1990s, it has been supporting the SEAMEO VOTTECH, the Regional Centre for Vocational and Technical Education and Training under the umbrella of the Southeast Asian Ministers of Education Organisation (SEAMEO).

India

India ranks 130 in the Human Development Index with world's second largest population (1267.4 million). The youth literacy rate (15-24 yrs) of India is 82.9 percent. With public expenditure on education (% of GDP) at 3.8 percent, the labor force participation rate is 54.2 per cent and total unemployment rate is 3.6 percent (UNDP, 2015).

The World Bank (South Asia Region) made an attempt to review status of skill development in India on the request of Government of India in 2006. Report identified several gap areas and discussed relevance, efficiency, and adequacy of vocational education and training in the country. Skill development programmes were placed in the policy agenda of the Eleventh Five Year plan (2007-12) of the government. The focus of the policy document was to create employment opportunities and imparting skills for employability particularly in unorganised sector. First time National Policy on Skill Development was formulated in 2009. But its' results was not so encouraging. Hence, National Policy on Skill Development and Entrepreneurship-2015 was developed. The objective is to "meet the challenge of skilling at scale with speed and standard"^{iv}.

At present, India is having a separate Ministry of Skill Development and Entrepreneurship^v. In addition, about 23 ministries/departments of Government of India (GOI) are offering VET programmes; the Ministry of Human Resource Development (MHRD) and the Ministry of Labor and Employment (MoLE) are the major players. Its national skills development system covers the following:

- National Skill Development Agency^{vi} (NSDA): The national skill development agency (NSDA), an autonomous body created with the mandate to co-coordinate and harmonise the skill development activities in the country. It is part of the Ministry of Skill Development & Entrepreneurship
- National Skill Development Corporation^{vii} (NSDC): The NSDC is a public private partnership in India under the Ministry of Skill Development & Entrepreneurship. It aims to promote skill development by catalyzing creation of large, quality for profit vocational institutions.
- National Skill Development Fund (NSDF): Set up in 2009 by the Government of India for raising funds both from government and non-government sources, and other donors/contributors to enhance, stimulate and develop the skills of Indian youth by various sector specific programmes. This is managed through the NSDC.
- Sector Skills Councils: There are 32 sector specific industry councils to accredit skills training, develop job-specific occupational standards and certify skills training.
- National Skills Qualifications Framework (NSQF): In 2012, the MHRD released National Vocational Education Qualifications Framework (NVEQF), which was later abandoned and the Ministry of Finance released the National Skills Qualification Framework (NSQF) in 2013 to be followed by all ministries and training providers. The NSQF is a quality assurance framework and provides level descriptors for training at 10 levels. The NSDA is the anchor organisation to implement the NSQF in association with the Sector Skills Councils and relevant ministries, state governments and other regulatory bodies.

India has responded well to the developments in ICTs, and particularly to the MOOCs. The Government of India has initiated development of a national platform for MOOC – Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM^{viii}). The platform is designed to host 2000 courses and 80,000 hours of learning covering school, under-graduate, post-graduate, engineering, law and other professional courses. The University Grants Commission (UGC) has released a regulatory framework of MOOCs, and allows providing credits up to 20% of the total courses

being offered in a particular programme in a semester through the online learning courses offered through SWAYAM platform (Gazette of India, July 20, 2016). The platform will cover courses curriculum-based courses in higher education, school education (Grade 9-12), skill courses, and courses for lifelong learning.

Maldives

With a population of 0.4 million, Maldives ranks 104 in the Human Development Index. The youth literacy (15-24yrs) rate 99.3 per cent and public expenditure on education of GDP is 6.2 per cent. The labor force participation rate is 66.8 per cent, and total unemployment rate is 4.4 per cent (UNDP, 2015).

Technical and Vocational Education Training Authority (TVETA^{ix}) under the Ministry of Human Resources, Youth and Sports (MHRYS) is the responsible agency to develop a comprehensive, demand oriented and partnership based TVET system in Maldives. Five Employment Sector Councils (ESCs) are established in the TVETA in the area of (i) Tourism Sector; (ii) Fisheries and Agriculture Sector; (iii) Transport Sector (Public and Private Education, Health); (iv) Social sector; and (v) Construction sector. These programmes are demand driven and it is targeted to cater for the labour market through various skills training programmes. The strength of the Maldives is a well-established Maldives Qualifications Authority. The certification of skills follows a 10 level qualifications framework. Government of Maldives initiated various schemes for larger participation in the skill development schemes. At present, more than 2,200 students have been enrolled in 15 institutions.

Malaysia

Malaysia is making all its efforts to attain the status of developed nation by the year 2020. At 62rank in the Human Resource Development Index (UNDP 2015), Malaysia has been making systematic efforts towards skills development. Of the total 21.4 million population, youth literacy (15-24yrs) rate is 98.4 per cent. The public expenditure on education (% of GDP) is 5.9 percent. Talent Crop, Malaysia reports that the labor force participation rate is 67.5 percent with unemployment rate at 2.9 per cent. Sixty percent unemployed are in the age group of 15-14, while 26.8% are graduates (Talent Crop, 2016).

In the 10thMalaysian Plan detailed an integrated human capital and talent development strategy that included emphasised raising the skills of Malaysian to increase employability. Malaysia has a robust and complex system of qualification framework, with ‘skills’ and ‘vocational and technical’ education as separate streams and there are multiple agencies coordinating skills development, which is often considered as a problem (Leong, 2011). In the Malaysian Qualification Framework^x (MQF) Levels 1 to 3 are Skills Certificates awarded by the Skills Sectors, while Academic and Vocational and Technical Certificates starts at Level 3 leading to Diploma and Advanced Diploma at Levels 4 and 5 respectively. Levels 6, 7 and 8 are Bachelor’s degree, Master’s degree and Doctoral degree respectively and available in the Academic stream only.

The Department of Skills Development under the Ministry of Human Resources controls the skills training which are offered through accredited training centres, apprenticeship programmes and assessment of prior learning. There are “33 polytechnics and 86 community colleges under the Ministry of Higher Education; 10 MARA Advanced Skills Colleges, 13 MARA Skills Institutes, 286 GIATMARAs under Majlis Amanah Rakyat (MARA) and 15 National Youth Skills Institutes under Ministry of Youth and Sports”(Wikipedia, 2016) offering skills training.

In 2015, the Ministry of Education released the Malaysia Education Blueprint^{xi} 2015-2025, which articulates two important issues related to TVET and global online courses. Focus on workforce productivity has been identified as a major way to build economic resilience and bring in transformation. The blueprint emphasized future focus will be on (MOE, 2015):

- Making TVET programmes industry-driven to improve employability;
- Developing more sustainable funding models through increased stakeholders partnerships; Providing easy pathways to TVET learners to make choices; and
- Improving attractiveness of TVET careers to attract a more diverse student body.

With regards to the MOOCs, the policy blueprint emphasises that focus on global online learning is important to reduce cost, avoid duplication of course development in Malaysia universities, increase access to all students in all university campuses, and reduction on the demands for extra physical space to accommodate higher enrolment of students in the campuses. It will also give global visibility to Malaysian niche courses such as Islamic Banking,

tropical sciences and eastern cultures (MOE, 2015). In 2014, the Ministry of Education launched four first year undergraduate compulsory courses as MOOC that bring together students of 20 universities. Support for MOOC is one of the strategies to promote global online learning, and currently there is a national platform – Malaysia MOOC^{xii} – which is mounted on the Australian OpenLearning.com. The site has 64 courses and over 150,000 students (as in August 2016). The Malaysian Qualifications Agency has developed credit transfer mechanism for taking MOOCs. Fadzil, Latif and Munira (2015) recommended industry-academic partnership and accreditation of prior learning in the MOOC environment, which maybe a pathway to link skill development and MOOC.

Pakistan

Pakistan is lowest ranked (147) among the Asian Commonwealth countries in the Human Development Index with 185.1 million population. Youth literacy (15-24yrs) is 70.5 per cent, and public expenditure on education (% of GDP) is 2.5 per cent. The labor force participation rate is 54.4 per cent with total unemployment rate at 5 per cent (UNDP, 2015).

The National Vocational and Technical Training Commission (NAVTTTC) established in 2005 is the apex body for skills development in Pakistan. The National Skills Strategy (2009-2013) guided the skills development initiatives which proposed a curriculum-based approach to competency based skills training (NVETC, 2009). The NAVTTTC released Pakistan National Vocational Qualifications Framework^{xiii} (NVQF) in 2015, which has 8 level with level 1-4 for certificate level, level 5 for diploma, level 6 for degree, level 7 for MTech and level 8 for PhD. The NVQF recognizes prior learning, work-based learning and apprenticeship apart from formal training. The NAVTTTC as the apex body develops competency standards, and also accredits training providers. As per the NAVTTTC records, there are 350,000 student enrolled in 3587 TVET institutes^{xiv}. In 2014-15, there were 320,185 graduates from TVET institutes, while the demand was for 950,000 graduates. Training is being organized through polytechnic, apprenticeship, government training and vocational institutions and private training institutions. Informal training system is dominated by the society. TVET institutes are being operated in all four provinces as well as the federal level under the control of federal and provisional governments. However, the percentage of private TVET providers are more than public training providers.

Singapore

Singapore is one of the most rapidly developing economies in the world in comparison to other Asian Commonwealth countries. Singapore has strong linkages between education and economy. It ranks 11 in the Human Development Index with 5.5 million population. The youth literacy rate (15-24 yrs) is 99.8 per cent and public expenditure on education (% of GDP) is 2.9 percent. The labour force participation rate is 67.8 per cent and the total unemployment rate is 2.8 percent (UNMDP, 2015).

Singapore has successfully and continuously unskilled its workforce over the last five decades (Kuruville, Erickson, & Hwang, 2001). Over the years, it has undergone many changes. Technical and polytechnic education in Singapore is industry ready qualification. People prefer technical and polytechnic education courses because they provide direct employment opportunities. Currently, the Singapore Workforce Development Agency^{xv}, established in 2003 is responsible for enhancing the employability and competitiveness of Singapore's workforce and operates under the Ministry of Manpower. There are 34 Workforce Skills Qualification Frameworks in Singapore that are recognized by the industry for employment. Qualifications are offered at six levels – Certificate, Higher Certificate, Advanced Certificate, Diploma, Specialist Diploma and Graduate Diploma. Skills training is provided by Approved Training Organisation (ATOs), and blended learning^{xvi} using technology for skills development is encouraged. The qualification framework includes foundation skills, cross industry skills and occupational skills. The Industry Skills and Training Councils are responsible for developing the competency standards for occupational skills.

At the school level, vocational education is provided in special education (SPED) schools that offer Institute of Technical Education Certificate or Workforce Skills Qualification. The Institute of Technical Education (ITE) was established in 1992 and has three colleges that offer vocational courses leading to employment for Singaporeans. Skills Future Council^{xvii} headed by the Deputy Prime Minister of Singapore is the leading advisory and policy making body to ensure an integrated system of learning, before and after employment for all Singaporeans.

MOOCs are offered in Singapore largely by the universities. The Infocomm Development Authority of Singapore in partnership with Coursera offered incentives to Singaporeans to complete a Data Science and Analytics training^{xviii} in 2014.

Sri Lanka

Sri Lanka is a relatively small country in South Asia with a population of about 21.4 million, and stands at 73rank in the Human development Index. The youth literacy (15-24 yrs) rates 98.1 per cent. The labour force participation rate is 55 per cent and total unemployment rate is 4.4 per cent (UNDP, 2015).

Mahinda Chintana – Vision for the Future, a policy framework developed by the Government of Sri Lanka in 2010 envisaged the need to identify and provide opportunities for Sri Lankan youth to follow internationally reputed training programmes (MFP, 2010). It also identified the following outcomes by 2020:

- Increased capacity of the technical education and vocational training institutions in the public sector;
- At least one College of Technology will be operated in each province, expanding access to new demand driven diplomas and higher diploma programmes
- Increased enrolment rate of public training institutions to 20% by 2013 and 30% by 2016
- Improved quality and relevance of training programmes
- Improved entrepreneurial ability of trainees
- Enhanced employability

It is estimated that “every year an estimated 140,000 students complete general education without having acquired job-related skills” (World Bank, 2014) in Sri Lanka. The Tertiary and Vocational Education Commission (TVEC^{xix}) established in 1991 under the Ministry of Youth Affairs and Skills Development, serves as the apex body in the matters related to the technical and vocational education and training in Sri Lanka. In 2016, TVEC released the Tertiary and Vocational Education policy^{xx}, which emphasized flexible delivery of training, quality assurance, industry collaboration, and vocationalisation of secondary education, amongst many other policy directions. The national vocational qualifications are integrated into the Sri Lanka Qualifications Framework (SLQF^{xxi}). The National Vocational Qualifications Framework offers seven levels (ADB, 2011):

- Level 1: National Certificate recognises entry level competencies
- Levels 2-4: National Certificate recognises increasing levels of competency, with level 4 as the exit for full craftsmanship
- Levels 5-6: National Diploma recognises technical and supervisor competencies
- Level 7: Bachelor Degree level competencies

There is a mechanism for recognition for prior learning, and the TVEC is the nodal agency for registration of training providers and assessors, and provides the industry-wise competency standards. Skills training is being provided by public, private and non-government agencies as accredited training providers of TVEC. Department of Technical Education and Training (DTET), Vocational Training Authority (VTA), National Apprenticeship and Industrial Training Authority (NAITA), and National Youth Service Council have been brought under the Ministry of Youth Affairs to provide a bigger umbrella and coordinate the complex training systems in Sri Lanka.

Discussion

Of the 1.2 billion youth globally, 540 million reside in the eight Commonwealth Asian nations. Youth unemployment rate in the Asian Commonwealth countries range between 7-25%. Realizing the importance of focusing on the youth, the Commonwealth countries in Asia have focused on skills development. Of the eight countries, 96 per cent of the population belongs to three countries i.e India, Bangladesh and Pakistan. Singapore is a model for skills development in the region, and has been able to continuously maintain a high rank in the human development Index. In the preceding pages, we have described various efforts by the respective governments of these countries. There is common challenge in most countries about the mismatch between industry needs and the skills training that these countries are trying to address. While private sector and industries are increasingly getting engaged in the skill development mission in these countries, more involvement in training is desired from them. We also see that many Asian Commonwealth countries are focusing on online learning and MOOCs. But, except

Singapore and India, no other country has specific guidelines for blended and online learning in the vocational education sector. The Indian MOOC platform has included skill-based courses within the scope of the platform.

World Bank (2008) reported that the 60-70 per cent of graduates of secondary vocational education programmes in India failed to obtain employment even after 2-3 years graduation. As per the Talent Shortage Survey 2015, there is 58 per cent shortage of skilled human resources in India. The demand for 550 million skilled workers by 2022 can only be met by developing a clear strategy for blended and online learning. India and Malaysia have invested heavily to develop MOOC platforms. While engineering courses are either offered or planned to be offered through these platforms, skills development training does not find mention.

ILO (2012) reported that TVET and skill training system in Bangladesh lacks quality and relevance. Curriculum development is not based on needs, are inflexible and time consuming. The development of new courses and closing of obsolete courses do not meet as per market needs. In the meanwhile, Bangladesh has taken steps to reform its vocational education and training, but skilling through the use of technology-mediated flexible models are yet to emerge as in other countries of the Commonwealth Asia.

Skill development remain neglected areas in Pakistan (Alam,2015). There are various reasons for this including, shortage of teachers, lack of industry experience of teachers, medium of instruction, and outdated curriculum (Agrawal, 2013). Similar concerns are there in the skills training systems of Maldives as well.

All the Asian Commonwealth countries have now geared up their skills development policies and plans, and have national vocational qualifications framework that operate at different levels. There are clear pathways for integration of vocation education in the national education plans, and provide adequate choice and opportunities to the learners.

A major problem encountered in the VET systems in these countries is lack of information. While countries like India, Sri Lanka, Malaysia and Pakistan have developed information systems, most of the data are not available to the public, and therefore, the efficiency and effectiveness of the initiatives, schemes and policy interventions can't be conclusively made.

While the policies, and qualifications framework and industry involvement in the training programmes are currently in place, there is absence of clear strategy to strengthen the quality of skills development from a teaching and learning perspective. While the training needs are huge, the current system of training are face-to-face, and can't provide the number of skilled human resources required. Most of the systems in the Asian Commonwealth countries have policies for accreditation of prior learning. This with increasing availability of Open Education Resources (OERs) would help in some way. However, what is needed is a blended strategy to use existing technology platforms for the delivery of skills development to large number of learners. Use of MOOCs is an option that Asian commonwealth countries need to consider in their skills development policies.

There is also a need to understand the role of open and distance learning in supporting and promoting Vocational Education and Training (VET). The advantage of ODL system is that in-service employees can learn at their pace and place without sacrificing their present job. ODL with the integration of multiple technologies has made non-conventional mode as effective as the conventional system of education and training. This will also help upgrade the qualifications of existing low skilled human resource. Moran and Rumble (2004) presented various successful case studies of skill training through distance mode in Scotland, South Africa, Kenya, Mongolia, Bangladesh, and Australia. They stated that organisations that wish to implement open and distance learning for VET should make sure that their administrative system support the implementation of flexible forms of learning. They also highlighted blended learning that is an effective means to increase retention and student satisfaction with the learning experience.

Conclusion

All the Asian Commonwealth countries have developed robust system of VET and focused on the skill development of the youth. However, the outcomes are varied. Policies implemented by the governments have played a major roles in improving the system and providing better opportunities to the learners. Our review of the policies finds inadequate focus on the use of technology for skills training. While MOOCs are being seen as democratizing as well as quality improvement interventions for higher education, these are not viewed as opportunities to scale skills development at speed. Singapore again shows ways in this front, and already adopted blended online learning and

MOOCs for skills development. TVET policies and strategies need to rethink pedagogical designs for training large number of skilled human resources. Open and distance learning and MOOCs are the only possible answers to the current skills shortage in the Asian Commonwealth countries.

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