



THE ROLE OF COMMUNITY COLLEGES IN SKILLS DEVELOPMENT

LESSONS FROM
THE CANADIAN EXPERIENCE
FOR DEVELOPING ASIA

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Foreword

Postsecondary education and training institutions are viewed by countries around the world as engines for accelerating growth through human capital development needed for knowledge-based economies. Emerging economies in Asia too aspire to strengthen advanced skills and education systems in order to move up global value chains. While developing countries in Asia have recorded high growth rates in the last decade, they face possible stagnation unless they are able to upgrade the quality and capability of their work force in line with the demands of world markets. This is where many economies are struggling.

There are growing problems of skills mismatches – training offered in technical and vocational education and training institutions is not in tune with the demand of employers and the market place. There is considerable lag between evolving market trends and change in the offerings of courses and disciplines for technical and professional training. It is clear that education systems need to become more diverse and offer a range of credentials to support the growth of industries and economies, particularly in those countries that aspire to move beyond middle income levels.

A recent report by ADB (Special chapter of Key Indicators for Asia and the Pacific 2015) notes that developing Asia spent over \$1.2 trillion on education in 2014, but stresses that higher spending alone will not have the desired impact on skills development. The report finds that up to 28% of existing jobs in some economies could be at high risk of disappearing as a result of technological changes. While new job opportunities will arise, a solid base of cognitive skills and non-cognitive skills are required to translate opportunities to concrete benefits for Asia's workforce.

In the overall post secondary landscape, community colleges have a prominent place. They can help in expanding and amplifying post secondary educational opportunities to larger numbers of students in a country. They play a crucial role in educating and training a workforce that can meet the challenges of a modern competitive world economy. They offer 'mezzanine' qualifications for mid level skills requirements in

various types of industries. But their role is far more than just addressing middle level qualifications and competencies. Community colleges and institutes of technology embody a strong equity value wherein they offer effective post secondary education and training opportunities to large segments of underprivileged population groups. They are also powerful bridges between high school and tertiary education. As you will read in this research paper, many Canadian Community Colleges and Institutes of Technology also provide valuable applied degrees and postgraduate certificates. They also open opportunities for postsecondary educational avenues to higher order technical training, academic transfer to a four-year degree at a university, and skills upgrade for people already in the workforce for better career prospects.

When it comes to developing countries, the challenge has been to upgrade the quality and outcomes of technical and vocational training programs. The key problems have been low level of prestige associated with technical and vocational education and training (TVET) and lack of well-developed pathways between community colleges and other vocational institutions and universities. Canadian colleges and institutes have adopted practical pathways by offering applied degrees and post-graduate certificates of specialization within the same institution, while maintaining their open access and responsiveness to industry. Other models are also possible.

While Community Colleges can be crucial avenues to offer advanced skills development, particularly aligned to the needs of the rapidly changing market place, their effectiveness in playing this role will depend on policy reforms and improved practices – such as integration of community colleges within the overall education system, strengthening the linkages between community colleges and high schools on the one hand and universities on the other, enhancing the prestige of credentials offered by community colleges, enriching the learning experience of students and enhancing their wage expectations and ensuring the success of students who enroll with weak academic skills. A renewed vision for community colleges in developing countries would help education systems to go beyond traditional models to include blended models that combine theoretical with practical training.

This publication arises from a knowledge partnership between ADB and the Colleges and Institutes Canada (CICan, formerly the ACCC) on skills development and TVET. CICan has partnered with ADB in the ADB International Skills Development series to advance dialogue on skills development between practitioners, policy makers, industry

representatives and academia. We believe that this publication which outlines the journey and success of the Canadian Community College models and approaches and their relevance to developing countries is an important contribution to the discourse on advanced skills development. ADB has an active portfolio of skills development projects and programs all over the Asia and Pacific region. TVET and Skills Development constitute over 50% of the ADB education sector portfolio pipeline for 2015-17 of over \$ 3 b. As part of a concerted effort to evolve viable TVET models, the times are opportune to explore the relevance of lessons from Canada so that developing Asian economies can formulate their own strategies suited to their context to translate extensive investments in skills development to greater economic and social returns for the individual and the economy.

A handwritten signature in black ink, appearing to read 'Brajesh Panth', is written over a horizontal line.

Brajesh Panth

Technical Advisor (Education)

Preface

This book presents key features, attributes and defining characteristics of Canadian Community Colleges and Institutes of Technology and the lessons they offer to developing countries in Asia. The Asian Development Bank (ADB) and Colleges and Institutes Canada (CICan, formerly the ACCC) have been long standing dialogue partners on issues concerning Technical and Vocational Education and Training (TVET) in the Asia and Pacific region.

There is generally a dearth of publications on the overall performance of the Canadian college and institute system. As education in Canada is decentralized and under the jurisdiction of the provincial or territorial Ministries, not much nation-wide analysis is available. With this in mind, ADB contracted Blagovesta Maneva-Sleyman, PhD, an independent expert, to undertake research on the community colleges and institutes in Canada and the lessons they offer, in collaboration with CICan.

This joint knowledge product documents the evolution of community colleges in Canada and their contribution to the economy and society. Internationalization initiatives suggest that partnerships in skills and human capital development are possible in countries at various stages of development and are in fact the hallmark of successful global economies.

Canada's approaches or models have relevance for other countries as the country has done very well in secondary and tertiary education attainments which are higher than the Organisation for Economic Co-operation and Development (OECD) average. In 2012, 92% of 25-34 year-olds in Canada attained at least upper secondary education (compared to the OECD average of 82%), and 57% attained tertiary education (compared to the OECD average of 39%). Canada has one of the lowest proportions of workers experiencing a mismatch between their literacy skills and tasks they perform at work among countries participating in the Survey of Adult Skills (PIAAC). Canada's unemployment rates were below the OECD average in 2012.

The Community College has been an important institution in the country's post secondary education landscape, providing access to relevant education and training as well as contributing measurable economic and social returns. Community colleges have particularly contributed to local economic and social development and have served the manpower needs of small and medium enterprises. Emerging economies in Asia can benefit significantly by deriving lessons from the Canadian models and approaches.

The book is organized in four chapters. The first chapter discusses the importance of successful advanced skills development in developed and developing countries alike and the centrality of community colleges and institutes of technology within the overall education and skills development system. The second chapter traces the evolution of the community college in Canada and the key characteristics and shared values that underpin the Canadian models and approaches. It provides an analysis of the key success factors and the governance and accountability systems that prevail in community colleges and institutes in Canada. It outlines student centered approaches and support services, how constant alignment with industry needs is ensured, and the integrated delivery of academic, employability and entrepreneurial skills. The chapter also acknowledges challenges that still remain to be tackled by the community college and institute system in Canada.

The third chapter goes into international initiatives of the Canadian community colleges and institutes and covers two specific case studies that demonstrate the value of cross-border partnerships in skills development and leadership in the sector. The Brazilian Mulheres Mil project (One Thousand Strong Women project) focused on providing underprivileged women from the poorer parts of Brazil with skills, confidence and knowledge to improve their lives and those of their families. The project helped boost their employability and entrepreneurship and has since been extended to the whole country.

The Vocational Education Leadership Training (VELT) program in the People's Republic of China (PRC) exemplifies the importance of leadership in skills development institutions so that they play out their real potential for the young people in the country, leading to employment or self-employment. Transforming education and training systems and mentalities requires strong leadership above all, not just better management. It also requires changing the perceptions of students and parents so that this type of education and training is no longer perceived as second-class.

The concluding chapter summarizes key lessons that can be derived from the Canadian approaches and practices, while reminding us that no model can simply be transplanted. Rather these should inspire other countries to create their own new models and practices.

We believe this book is very timely as developing countries in Asia and the Pacific are facing challenges in providing relevant training that leads to gainful employment. Many countries are experiencing a growing number of unemployed university graduates. Training in community colleges and institutes can serve to upgrade and diversify the overall caliber of the workforce for economic activity that will help economies to move beyond middle income levels. Community colleges and institutes can also help to meet the growing aspirations of youth for higher order credentials. Canadian colleges and institutes offer applied bachelor degrees and post-graduate certificates of specialization, which are becoming popular with overseas students.

We hope that this publication will stimulate an active debate on the relevance and approaches for improving or setting up community colleges and institutes of technology in the developing countries of Asia and the Pacific. Please write to us for comments and queries.



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Dorothy Geronimo, Education Officer, Asian Development Bank, coordinated the production of this knowledge product.

Abbreviations

ABC	<i>Agência Brasileira de Cooperação</i> (Brazilian Cooperation Agency)
ACCC	Association of Canadian Community Colleges
ADB	Asian Development Bank
AQPC	<i>Association Québécoise de Pédagogie Collégiale</i> (Quebec Association for College Pedagogy)
CANSIM	Statistics Canada's key socioeconomic database
CBE	Competency-Based Education
CEAIE	China Education Association for International Exchange
CEFET	<i>Centro Federal de Educação Tecnológica</i> (Federal Technological Education Center) (of Brazil)
CEFET/RN	<i>Centro Federal de Educação Tecnológica do Rio Grande do Norte</i> (Federal Technological Education Center of the [Brazilian] state of <i>Rio Grande do Norte</i>)
CEGEP(s)	<i>Collège(s) d'Éducation Générale et Professionnelle</i> (College(s) of General and Professional Education) (of Quebec)
CEO	chief executive officer
CFI	Canada Foundation for Innovation
CIDA	Canadian International Development Agency
CMEC	Council of Ministers of Education (of Canada)
DACUM	Developing A Curriculum
DFAIT	Department of Foreign Affairs and International Trade (of Canada)
EFE	education for employment
ESDC	Employment and Social Development Canada
EMSI	Economic Modelling Specialist Inc.
GDP	gross domestic product
HRSDC	Human Resources and Skills Development Canada
IDRC	International Development Research Centre (of Canada)
IF	<i>institutos federais</i> (federal institutes [of vocational education]) (of Brazil)

ILO	International Labour Organization
IPAC	Institute of Public Administration of Canada
KPI	key performance indicators
LMA	Labour Market Agreement
LMDA	Labour Market Development Agreement
LMI	Labor Market Information
MEC	<i>Ministério da Educação</i> (Ministry of Education [of Brazil])
MM	<i>Mulheres Mil</i> (A Thousand Strong Women) (project in Brazil)
MMIA	<i>Mulheres Mil</i> Impact Assessment
NHS	National Household Survey
OECD	Organisation for Economic Co-operation and Development
ONCAT	Ontario Council on Articulation and Transfer
PISA	Programme for International Student Assessment (of Canada)
PLAR	Prior Learning Assessment and Recognition
PRC	People's Republic of China
<i>Proeja-FIC</i>	<i>Programa Nacional de Integração da Educação Profissional com a Educação Básica - Formação Inicial e Continuada</i> (National Program for the integration between Professional and Basic Education for young people and adults - Initial and Continuing Training)
PRONATEC	<i>Programa Nacional de Acesso ao Ensino Técnico e ao Emprego</i> (National Program for Access to Technical Education and Employment) (of Brazil)
PSE	postsecondary education
SETEC	<i>Secretaria de Educação Profissional e Tecnológica</i> (Secretariat of Professional and Technological Education (of Brazil)
TVET	Technical and Vocational Education and Training
VET	Vocational Education and Training
VELT	Vocational Education Leadership Training
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
WB	World Bank
WEF	World Economic Forum
WFCP	World Federation of Colleges and Polytechnics

Executive Summary

A World Phenomenon with Multiple Facets

Community colleges, which emerged as formal postsecondary educational institutions in the United States during the 1960s, have been established in a wide range of countries. These include: Armenia, Australia, Canada, Egypt, France, Hungary, India, Indonesia, Japan, Kazakhstan, Malaysia, Mexico, New Zealand, Norway, the Union of South Africa, Thailand, the United Kingdom, and Viet Nam. The community college model is thus widely prevalent.

The mandate of community colleges, which is to expand the stock of human capital and thereby to facilitate economic advance, has remained relatively constant across all countries. Community colleges fulfill this mandate by (i) producing skilled labor-market entrants, (ii) forming a bridge between technical training and academic education that facilitates shifts and interaction between the two, and (iii) offering multilevel continuing education to all segments of the communities they serve.

Vocational Education for All

Community colleges are unique in that they provide in-school vocational training that directly supports industrialization and employment by providing open access to postsecondary vocational education for large populations, while emulating the economic and cultural specificities of their environment. Their applicability to Asian developing economies is thus direct, since many of these countries have pursued economic growth through industrialization. This causes the demand for workers with medium- and high-level skills to expand rapidly. Vocational education institutions such as community colleges thus have a central role to play in rapid economic advance, particularly in developing Asia.

This book describes the Canadian approach to technical skills development, the success it has achieved, and the implications of this

success for policy toward skills development in emerging economies. The study identifies features of the Canadian community college model that could inspire models in other countries for advanced skills development. The study features two case studies: the *Mulheres Mil* (A Thousand Strong Women) project in Brazil, and the PRC's Vocational Education and Leadership training (VELT) program.

Canada's Unique Approach to Education and Skills Development

A Decentralized Model with Diversity and a Common Set of Values

In Canada, there does not exist a national education system or a federal ministry of education. Instead, responsibility for education resides entirely with each province or territory. Canadian community colleges thus reflect the economic, social, cultural, and political characteristics of the province or territory in which they are located. This accounts for the diversity of Canadian community colleges, which is one of their defining characteristics.

While decentralization is a key characteristic and there is no unique national model, community colleges in Canada share many common principles. They are built on and display Canadian values, seen as the common denominator of Canadian public colleges' identity, and are, among other things: (i) accessible and inclusive; (ii) affordable; (iii) community-based; (iv) oriented toward the requirements of local employers; (v) student-centered; (vi) focused on applied learning and applied research; (vii) flexible and nimble in responding to change; and (viii) open to the world, to new learning opportunities, and to internationalization. Common historical roots (most colleges were established at the same time under the same economic and social pressures and with similar public funding sources) as well as similar evolutionary patterns also contribute to their cohesion. Their inherent diversity notwithstanding, Canadian community colleges have evolved toward greater similarity in such common values over the past few decades. This has been achieved by community colleges becoming multifaceted in terms of the subject matter taught; the degrees, diplomas, or certificates granted; the study options available to students; and their participation in international partnerships.

Canadian Colleges Are Deeply Rooted in Their Communities and Have Strong Partnerships with Industry and Employers

The primary mission of Canadian public colleges is to serve the economic and social needs of their communities. Since their creation, colleges have become education and knowledge hubs in their communities. Tight linkages to community associations, employers, and local industry ensure the colleges' relevance and responsiveness to community needs, and their flexibility and nimbleness. Community groups and associations, as well as industry and employers' representatives sit on the colleges' governing boards.

Their focus on development of employment skills has led to the establishment of strong partnerships with local industries and business communities. These partnerships promote applied education and research and knowledge transfer, create internship opportunities for students, and account for the sustained high employment rates of college graduates. Employers are actively involved in the program advisory committees that are established for every technical and vocational program delivered by the colleges. They provide input to program curriculum development based on new industry developments, and on feedback on recent college graduates' work performance.

Collective Governance and Modern Accountability Define Canadian Colleges

Public colleges are governed by boards whose main role is to provide collective leadership in determining the colleges' future directions. Board members are representatives of local employers, industry, community groups, and local governments; and in some institutions, administrative staff, faculty, and students are also represented. The board provides strategic direction, and advises and hires the president of the college. The role of the college president is anything but bureaucratic. The president is an ambassador for his/her institution. He/She establishes and maintains close relationships with the community, government agencies, staff and students, and manages administrative issues, planning, and reporting on material, financial, and human resource issues; leads the development and upgrading of curricula.

To avoid unnecessary bureaucracy and counterproductive relations with colleges, some provincial governments have begun to gradually

substitute traditional control with modern accountability mechanisms based on results. Results-based management requires solid performance measurement to track achievements, enable success, and correct inappropriate courses of action. Several provinces have established key performance indicators and measures, and some of them have even introduced elements of performance-based funding.

Comprehensiveness Is a Key Characteristic of Canadian Community Colleges

Canadian colleges have evolved as teaching institutions offering a broad range of comprehensive educational programs that vary widely in terms of subject matter, duration, learning methodology, location (multiple physical and online campuses), time of study (day and evening), intensity (part-time and full-time), and student-type (youth, older adult, working, unemployed, underemployed, and retired). Open admission policies are supported by provision of a broad range of student services to facilitate the success of students from diverse backgrounds and abilities.

The comprehensiveness of the colleges' curricula is seen as one of the most fundamental characteristics of Canadian community colleges, and accounts for the colleges' connection to all people and all needs in their communities. The principle of competency-based education is at the core of the colleges' curriculum development. Competency-based education makes the individual learner and his/her attainment of knowledge and skills the primary focus of the education process. Based on the assumption that no one can describe his/her job better than an expert worker, the Development of a Curriculum (DACUM) method is largely used to develop specific curricula for numerous occupational training programs; to maximize input from industry; and to facilitate buy-in from learners, employees, and employers.

Open-End Pathways and Rich Transferability Options Make Canadian College Education Attractive to Students

Colleges offer a variety of program options, that allow students to proceed from high school to college, within the postsecondary education system, between colleges, or between colleges and universities. These programs offer a variety of degrees, certificates, and diplomas. Bachelor's degree programs offered by colleges are often seen as combining the best of the university and college worlds: advanced theoretical education with

high-level technical and applied education. Once only unidirectional—from college to university—postsecondary education pathways are now increasingly bidirectional, with a growing number of university graduates seeking a college diploma.

Developing Essential Skills Paves the Road for Future Learning and Skills Development

Employable skills are a primary driver of economic growth, and Canadian colleges focus on the development of three types of skills: (i) essential skills, (ii) technical skills, and (iii) job-specific skills.

There is increased focus on essential skills, as they provide the foundation for learning all other skills. Workers possessing essential skills are more able to advance within their occupations and shift to other occupations. Examples of essential skills include the ability to read, write, perform basic arithmetic calculations, use documents in a businesses setting, use computers, think critically, solve problems, communicate orally, and work with others.

In contrast, job-specific skills are not as easily transferable from one occupation to another. Thus, the role of Canadian community colleges is seen as providing students first with the essential skills that support future learning and thence career progression, and following this, technical or job-specific skills. Finally, because entrepreneurial skills facilitate innovation and development of small business, they are crucial to building global competitive advantage at the national level. Canadian community colleges have therefore increasingly offered programs that teach entrepreneurial skills.

Applied Research and Entrepreneurship Are the New Milestones of Canadian Colleges' Development

Canadian community colleges have seized the opportunity offered by the unmet needs of small- and medium-sized companies for research and innovation to turn these companies' challenges into student-led applied research problems. Applied research is a powerful tool in building highly desired skills for employment, as it enhances students' learning and skills development by applying acquired knowledge in real-life situations and problems. It also allows colleges to be at the vanguard of

new technological developments such as green technologies. Applied research reinforces the existing relations between colleges and industry and eases the school-to-work transition. This experience also provides students with the possibility to build relationships with employers, to market their skills, and thus to increase their employment prospects. Their collaboration with researchers, employers, and employees allows students to develop not only research and technical skills, but also entrepreneurial, interpersonal, and communications skills. On the other hand, applied research connects employers and companies with up-to-date academic knowledge and research discoveries, and thus allows for vital knowledge transfer. The enhanced collaboration between economic and social sectors and colleges has a considerable impact on communities. It not only stimulates local and regional economies by creating jobs and a vibrant economic climate, but also promotes social inclusion, cohesion, and innovation.

In sum, the factors that have contributed to the success of Canadian community colleges in skills development include

- accessibility, inclusiveness, and diversity;
- a close relationship with the local community;
- openness to the requirements of local employers;
- employer involvement in skills development programs;
- college governance employing a multi-partnership model that includes representatives of local firms and community associations, as well as college faculty, staff, and student representatives;
- operational autonomy and flexibility as a result of institutional decentralization;
- modern performance-based accountability mechanisms;
- a curriculum that emphasizes essential skills first, but also includes technical and job-specific skills as well as entrepreneurial skills;
- a curriculum that includes a broad range of subject matters;
- availability of programs of varying duration with flexible time arrangements;
- a variety of teaching and learning methodologies;

- applied research as a means of strengthening linkages with local employers and industry, and creating opportunities for both student employment and job placement;
- a range of options for transferring between secondary and postsecondary education, as well as between community college and university;
- comprehensive student support services that facilitate and encourage student success, and
- leadership that relates well to local-community stakeholders.

Facilitation Rather than Exportation: Canadian Colleges' Approach to International Cooperation and Partnerships

As early as the 1970s, Canadian community colleges had active international exchange programs, and had enrolled their first international students. Because they are oriented toward internationalization, Canadian community colleges place significant emphasis on international development partnerships.

This book explores two cases studies that demonstrate the success of Canadian community colleges in assisting developing countries to adapt methodologies that have proven successful to their own circumstances, rather than importing Canadian methodologies wholesale. These are (i) the *Mulheres Mil* (A Thousand Strong Women) project in Brazil, and (ii) the Vocational Education Leadership Training (VELT) program in the People's Republic of China (PRC). The approach of Canadian community colleges toward international development partnerships is “facilitation rather than exportation.”

Mulheres Mil: Beyond Employment Goals: Citizens' Skills for a Better World

Women were deliberately chosen as *Mulheres Mil* beneficiaries because research shows that human capital investment in females produces greater income growth than does investment in males. Further, because *Mulheres Mil* beneficiaries comprised young and mature women—most of them mothers—project benefits extended to the beneficiary's entire household, and even to succeeding generations.

A major achievement of the *Mulheres Mil* project was regularization of enrollment of disadvantaged students, which was achieved by developing legal pathways for matriculating *Mulheres Mil* beneficiaries, since legally, only students that had passed the requisite entrance examination could enroll in federal institutes.

A second major achievement was that all participating federal institutes developed a methodology that ensured access, retention, and success on the part of disadvantaged female students that could be expanded to other educational institutions. Finally, the federal institutes worked closely with local employers to guarantee the acceptance of beneficiaries into the labor market, in many cases through *Mulheres Mil* subprojects.

Ultimately, the success of the *Mulheres Mil* project was on such a scale that it evolved into a national program, which spread project benefits to all regions of Brazil, and to literally millions of disadvantaged women. In fact, in October 2011, Brazil enacted a law creating the National Program for Access to Technical Education and Employment, the objective of which was to help young people and workers upgrade their labor market qualifications as a means of increasing their income levels. Ultimately, the *Mulheres Mil* project demonstrated that economic and social policies are inextricably related, and that skills development transcends the sphere of economic activity to include social change.

The Vocational Education Leadership Program: Developing Vocational Education Leadership for the Future

The primary objective of the Vocational Education Leadership Training (VELT) program in the PRC, was to upgrade the leadership of vocational education institutions. Because vocational education and training is considered central to the PRC's education system, the government has designated vocational education and training as a primary target in its education promotion program.

The VELT program comprised several types of activities: (i) training abroad, (ii) production of reports and discussion papers, and participation in (iii) working groups, (iv) focus groups, (v) seminars, and (v) briefing conferences. The core of the VELT program was training abroad for a 1 month period. In 2010, 208 leaders from 148 higher education colleges from all provinces of the PRC were sent to Australia, Canada, Germany, Singapore, the United Kingdom and the United States. In 2011, 142 such

leaders were sent to Australia, Canada, Germany, the Republic of Korea and the United States.

As a result of their training in Canada, VELT participants developed proposals on upgrading of the PRC's vocational education institutions in three key areas: (i) college governance and performance, leadership, and management; (ii) curriculum development and teaching methods; and (iii) application of student-centered approaches to teaching and learning.

The lessons VELT participants learned from their Canadian experience have direct applicability to upgrading vocational education institutions in Asian developing countries generally. For example, many Asian developing countries are promoting a greater degree of value-added processing in their manufacturing activities as a means of both increasing income and accelerating labor absorption. This requires shifting the composition of the national skillset toward mid-range and higher-level skills, which in turn requires upgrading the skills development systems of these countries, and thence, their vocational education institutions.

It is possible to draw a number of specific lessons from the Canadian community college experience that may be helpful to Asian developing countries in upgrading their skills development systems. These can be summarized as follows

- Greater opportunities for market-oriented training leads to better employment
- “Access to education and skills transcends simple enrollment. It includes creating every possible condition for students to succeed in their studies.
- The success of the *Mulheres Mil* project, which is a partnership with Canada proves that populations with low-level skills who live in disadvantaged communities or remote areas are able to improve their employability when access to education skills and appropriate support is provided.
- The primary mission of community colleges is to serve the economic and social requirements of the communities in which they are located. A close relationship with the local community ensures relevance to the changing requirements of industrial enterprises. Involving employers in curriculum development and program formulation ensures that the education and training provided by vocational education institutions is consistent with changing skill requirements.

- Autonomy in education and training institutions allows them to respond flexibly to skill requirements of industry. Shifting from a traditional top-down, rules- and compliance-based governance model to a values and principles-based system can provide vocational education institutions with such flexibility. However, there is also need for decentralization of governance and administration as well as adoption of modern accountability systems based on data and analysis, to ensure orientation to achieving stated results.
- The curricula of vocational education institutions should emphasize essential skills, as well as technical and job-specific skills. Technical and job-specific skills require constant updating, which depends heavily on essential skills. Teaching essential skills is thus imperative for the long-term success of all skills development programs.
- Efficient skills development models must be rooted in the context of each country and region, as well as in the values and culture of the nation as a whole.

Canadian Community Colleges and Institutes Also Face Contemporary Challenges

Decreasing revenues from provincial governments, which fund public college education, contrast with increasing demand for postsecondary education and college enrollment. Reduced government funding can negatively impact the colleges' capacity to offer the variety and quality of educational programs valued by industries and communities, as well as student services that support the success of these programs. Continued increase in fees in order to compensate for the decrease in government funding risks undermining college education's accessibility and affordability, which have been the hallmarks of community colleges.

Decentralization, which plays a major role in the colleges' flexibility and nimbleness, also presents some challenges for a coherent national approach to skills development. The absence of a federal ministry of education hinders the establishment of certain important nation-wide skills development initiatives, such as a national skills development strategy, and a national college database and performance measurement system. This also poses a challenge in terms of representation for Canadian colleges on the international scene, including, at times, their involvement in international projects. While Colleges and Institutes

Canada (CIC an) aims to fill this gap within its mandate as a national volunteer membership based and not-for-profit association of Canadian public colleges, its efforts cannot entirely replace a well-organized government structure and national strategy.

Introduction

The Role of Community Colleges and Vocational Education in Economic Development

The concept of community colleges originated with the German *Volkhochschulen* (“advanced schools for the general populace”) and their Scandinavian counterparts, “folk high schools.” However, the notion that community colleges were to function as formal postsecondary educational institutions emerged in the United States during the 1960s (Raby, 2001). In parallel with this, community colleges emerged as publicly funded postsecondary educational institutions in Canada during the 1960s as well.¹

In the years that followed, the notion that community colleges should be formal postsecondary educational institutions grew rapidly. As a result, community colleges emerged in a surprisingly diverse set of countries and cultural contexts. For example, community colleges were established in Armenia, Australia, Canada, Egypt, France, Hungary, India, Indonesia, Japan, Kazakhstan, Malaysia, Mexico, New Zealand, Norway, the Union of South Africa, Thailand, the United Kingdom, and Viet Nam. The diversity of these countries and the cultures they represent is testament to the flexibility of the community college model, in that it is able to adapt itself to a wide range of national and cultural contexts.

In light of this geographic dispersion of the community college model, it is unsurprising that the names used to refer to community colleges have varied widely. These include “colleges of further education” (Scotland, the United Kingdom), *Fachhochschulen* or “secondary schools for the

¹ Throughout this book, the term “community college” refers to a publicly funded postsecondary educational institution that provides technical and vocational education that serves the requirements of the community in which it is located. For purposes of this book, the term “community college” is therefore interchangeable with terms such as “technical institute,” “polytechnic college,” “vocational training institute” and the like.

people” (Austria, Denmark, Finland, Germany, Iceland, the Netherlands, Norway, Sweden), “junior colleges” (India, the United States), “regional colleges” or “district colleges” (Austria, Chile, Ethiopia, Iran, Pakistan, Tanzania), “polytechnic colleges” (Australia, Belarus, Canada, France, Iraq, Kazakhstan, Mexico, Myanmar, Zimbabwe), “technical colleges” or “further education colleges” (Australia), “technological educational institutions” (Greece), and “technical colleges” or “technical institutes” (Belgium, Canada, Columbia, Ghana, Indonesia, Malaysia, Singapore, Taipei, China, Thailand) (Raby, 2009).

This wide divergence in nomenclature notwithstanding, the mandate of community colleges has remained relatively constant across the countries in which they have been established. Simply put, this mandate is to expand the stock of human capital, and thereby to facilitate economic advance, and hence social mobility. Community colleges achieve this by (i) producing skilled labor-market entrants, (ii) forming a bridge between technical training and academic education that facilitates shifts and interaction between the two, and (iii) offering multi-level continuing education to all segments of the communities they serve (Table 1).

An important implication of the above is that community colleges offer education to relatively large populations, and in particular, to persons traditionally underrepresented in higher education. This allows them to ultimately function as vehicles for facilitating economic and social mobility. This function of community colleges is underpinned by the most basic notion of human capital theory, which is that education and training enable greater productivity, and thence higher levels of income at the level of the individual worker.

Table 1: Characteristics of Community Colleges in Selected Countries

Australia	• technical and further education institutions (colleges and institutes) provide predominantly vocational education courses across a range of fields including business, construction, engineering, and hospitality and tourism; • offer competency-based vocational education and training qualifications; • some institutions offer higher education vocationally focused programs (bachelor degrees) (10 institutes that account for less than 3% of all students in 2009); • funded by state and territorial governments; • most teachers have post-graduate qualifications. Source: UNEVOC World TVET Database-Australia; Wheelahan et al, 2009)
Malaysia	• public vocational education and training institutions are supervised by the Ministry of Education; • the first 12 community colleges were established in 2001 (initially for secondary school leavers); • currently, 50 major campuses with 28 branches; • offer certificates and diplomas, employability and entrepreneurship programs; full-time and short-term courses; • range of programs offered includes agriculture, arts and humanities, business, computer science, construction, services. Source: Noor (2012).
Philippines	• 89% of higher education institutions are privately owned; the latter attract 66% of all students; • community colleges offer 2-year programs leading to an associate's degree in a broad range of vocational areas (e.g., agriculture, fisheries, hotel management, technical trades); • since 1995, all non-degree vocational education and training programs have been supervised by the Technical Education and Skills Development Authority. Source: Clark (2009).

continued on next page

Table 1 *continued*

United Kingdom	• further education colleges offer a broad range of vocational and academic education; some colleges specialize in particular fields such as art and design, catering, engineering, or horticulture; • 35% of all vocational qualifications are awarded by colleges; • further education and sixth-form colleges attract 38% of students 16–18 years; • estimated impact of £3 billion government spending on students aged 19+ in further education is £75 billion recycled back into the United Kingdom economy; • Teachers working in further education in England must gain professional status (referred to as Qualified Teacher Learning and Skills). Source: AOC (2014).
United States	• 1,132 community colleges serve nearly half of all undergraduate students; • these provide open access to postsecondary education (in 2014, 36% of community college students were the first in their immediate family to attend college); • prepare students for the workplace, or for transfer to 4-year institutions; • offer vocational education certificates or associate degrees (the latter replaces the first 2 years of 4-year baccalaureate degree programs at the university level); • federal, state, and local governments provide 60% of total funding; • most full-time faculty have postgraduate degrees. Source: AACC (2014).
Viet Nam	• community ownership with focus on unique local needs; • Ministry of Education and Training approves and directs all academic matters, though colleges design their own programs based on mandated core curriculum; • public colleges offer programs leading to a diploma in various fields (e.g., accounting, agriculture, education, engineering); • able to grant multilevel college certificates and diplomas; agreements with universities enable students to earn a bachelor's degree; • legislation requires that these institutions conduct scientific and technological research that serves local needs; • funded by local government. Source: Epperson (2010).

Community colleges are unique within national educational systems, in that in addition to academic education, they provide in-school vocational training. The latter is important, because it shifts a substantial portion of the cost of providing such training on to the economy at large, rather than causing the entire financial burden of such training to be borne by the employer through on-the-job training. Because community colleges equip labor market entrants with skills and competencies required in particular occupations or trades, they increase the stock of human capital within the segment of the educational system that directly supports industrialization.

As mentioned above, a major objective of community colleges is to provide labor-market entrants with skills appropriate to the requirements of local industry. That said, today's industrial enterprises are more technology-intensive than at any other time in human history. Further, the rate at which the technology employed by these enterprises is changing is likewise more rapid than ever before. Maintaining a supply of labor-market entrants with skills appropriate to current industrial requirements is therefore not a trivial task.

The significant pace at which the demand for highly-skilled workers has expanded in most countries over the past two decades is thus a natural outgrowth of efficient national development policies that pursue rapid economic advance through industrialization. In light of the above, it is unsurprising that the pace of growth in the demand for labor-market entrants with medium- and high-level skills has been most rapid in emerging economies such as Brazil, the PRC, India, and Indonesia (OECD, 2014). However, rapid growth in the demand for skilled labor is hardly a feature unique to developing economies.

A recent study of growth in the demand for skilled labor that was performed by the McKinsey Center for Government surveyed nine countries: Brazil, Germany, India, Mexico, Morocco, Saudi Arabia, Turkey, the United Kingdom, and the United States. The study found that only 43% of the employers surveyed agreed that they could find enough skilled entry-level workers (McKinsey, 2014). In fact, one of the more alarming conclusions of the study was that that by 2020, there will be an estimated global shortfall of 85 million labor market entrants with middle- and high-level skills.

Interestingly, a separate study by the International Labour Organization (ILO) concluded that an estimated 73 million young people were unemployed in 2013 (ILO, 2013b). This suggests that the rapid rate at which industrialization is taking place globally has coupled with the current pace of technological advance to cause the demand

for labor-market entrants with medium- and high-skill levels to expand so rapidly wherein workers lacking such skills are unemployable. This suggests a significant mismatch between the skills supplied and those demanded.² It would appear that this mismatch particularly constrains growth in low-income countries, as labor able to offer only basic skills results in slow growth in productivity relative to countries able to access more expansive skillsets. This in turn constrains the rate at which economic diversification—and hence rapid economic growth and labor absorption through increases in value-added processing—can take place (World Economic Forum, 2014).

Both rapid expansion in the range and levels of skills demanded and the skills mismatch referred to above significantly stress the ability of education providers to supply labor-market entrants with skills sufficient to meet industry demand. In turn, skills mismatches suggest that educational policies, curricula, and institutions need to be upgraded, or at the minimum, that traditional institutional, educational, and partnership models must somehow be transformed. Otherwise, the demand for skilled workers referred to above is unlikely to be met (Clifton et al., 2014; Jagannathan, 2013; Jagannathan and Geronimo, 2013; OECD, 2010).

Once viewed as a second-class option to a university education (Brennan, 2014; Lyons et al. 1991; Raby, 2001), in recent years, vocational education has proven vital to supplying labor-market entrants with the skillsets required of them. In short, postsecondary vocational education is the key to resolving the predicament of what has been called “people without jobs and jobs without people” (Miner, 2010). In sum, increasing the number of graduates from vocational education programs and gaining experience through well-structured internships are now recognized as actions necessary for reducing both unemployment and skills shortages (OECD, 2014).

All of the above suggests that vocational education institutions have a unique role to play in rapid economic advance, particularly with regard to their role as providers of labor-market entrants with appropriate

² “Skills mismatch” is a broad term that refers to various types of imbalances between the skills offered and skills required (ILO, 2011). A “skill shortage” occurs when demand for a particular type of skill exceeds the supply of people with that skill at equilibrium rates of pay. A “skill gap” exists when the type or level of skill supplied differs from that required to adequately perform the work in question (WEF, 2014, based on OECD and Cedefop definitions).

skills. Further, the fact that the primary focus of vocational education institutions is the community in which they are located makes them central to any efficient skills development strategy.

Purpose of the Study

A relatively large number of Canadian community colleges have implemented international partnership programs in a wide variety of countries and cultural contexts. Despite this, little is known about the functional impact of these programs. The purpose of this book is to describe the Canadian approach to skills development, the success it has achieved, and the implications of this success for policy toward skills development in emerging economies, Asian emerging economies in particular.

More specifically, the purpose of the present study is to answer the following questions:

- Which features of the Canadian community college system as it relates to skills development are suitable for adaptation to conditions in developing countries, particularly in light of the successes of Canadian community college partnership initiatives in Latin America and Asia? Of particular interest to the study in this regard are the *Mulheres Mil* (A Thousand Strong Women) project in Brazil, and the PRC's Vocational Education and Leadership Training (VELT) Program.
- How can those features of the Canadian community college system be operationally adapted to skills development programs in Asian developing countries?

The following methods were used to collect the data and information that underpin the study:

- review of relevant literature and documentation;
- 24 semistructured interviews with Brazilian, Canadian, and PRC educational policy and college leaders and professionals, as well as Canadian business community and industry leaders;
- case studies; and
- feedback from participants at the workshop conducted under VELT Program auspices in the PRC.

Structure of the Book

Three chapters comprise the remainder of this book. Chapter II describes how Canadian community colleges evolved into skills development hubs. Chapter III describes how Canadian community college policies and practices have been adapted to skills education in Brazil and the PRC. In this regard, the book places considerable emphasis on the two international cooperation projects referred to above. Chapter IV concludes the book by briefly summarizing how Canadian community college policies and practices might be adapted to the requirements of Asian developing countries in general.

Canadian Community Colleges and Skills Development

Evolution of Canadian Community Colleges as Vehicles of Skills Development

Often referred to as “junior colleges,” non-university postsecondary educational institutions first appeared in Canada during the first half of the 19th century. Their growth was slow at first, their number totaling only 49 by 1959 (Skolnik, 2008). However, these institutions were the precursor to modern community colleges, which first emerged as publicly funded postsecondary educational institutions in Canada during the 1960s. This paralleled the emergence of community colleges as formalized postsecondary educational structures in the United States during the same period (Raby, 2001). Box 1 provides recent significant

Box 1: Canada’s Community Colleges, Institutes, and Polytechnics at a Glance (2014)

- 132 institutions (community colleges, institutes, polytechnics, cegeps);
- more than 1,000 campuses across Canada;
- more than 1.5 million learners in 3000 communities across the country;
- In 2011, 11,782,700 or 64.1% of Canadian adults aged 25 to 64 had postsecondary qualifications;
- in 2011/2012, 1,996,200 Canadians were enrolled in postsecondary institutions, and 37% of them were enrolled in colleges. 72% of the college learners were full-time students and 28% were enrolled on a part-time basis;
- on average, more than 90% of college and institute graduates find employment within 6 months of graduation;
- 94% of employers are satisfied with their college graduate hires;
- 27,300 immigrants prepared for integrating into Canada’s life and employment upon their arrival in Canada;
- 20% of Canadian college students have previous university experience or a degree;
- 5,444 companies partnered with colleges and institutes on applied research projects in 2013/14, a 19% increase over 2011/12;
- 48 international research partnerships are underway in 21 countries;
- more than 750 partnerships in 110 countries in the past 40 years.

Source: Colleges and Institutes Canada (2014).

facts and figures that relate to Canada's community colleges, institutes, and polytechnics and their contributions to the Canadian society.

A primary mandate of Canadian community colleges was to supply the country's rapidly industrializing economy with labor-market entrants equipped with technical skills appropriate to the changing requirements of local industrial enterprises. While the skills required by these firms required significant training at the postsecondary level, these skillsets were significantly more specialized than those of university graduates, the training of the latter resulting in skills that are general in nature, thus constituting preparation for further education (Skolnik, 2004).

In fact, acceleration in the demand for skilled labor in Canada as a result of rapid industrialization occurred just as immigration of skilled labor from postwar Europe had begun shrinking. As a result, Canada's traditional university education system became incapable of satisfying the demand for skilled labor of the type required for a rapidly industrializing economy. It was these factors that caused community colleges to become rapidly established in Canada. Their emergence thus constituted insertion of an intermediate layer into the Canadian educational system that would provide labor with specialized skills in significant quantities. This contrasts sharply with the widespread though somewhat naïve view of community colleges as a simple midway between secondary school and university.

Administrative Structure of the Canadian Community College System

In Canada, there exists no national education system. There is thus no federal department of education, and no national legislation governing the establishment, administration, or mission of institutions of higher education (Skolnik, 2008). Instead, the responsibility for education resides entirely with the provincial or territorial government concerned. As a result, each province and territory has its own educational system. This means that all Canadian community colleges are governed by provincial legislation. The provincial and territorial governments thus determine the governance, administration, structure, and curriculum content of community colleges (Skolnik, 2008). In short, Canadian community colleges are viewed as instruments of provincial and territorial social and economic policy.

In light of the above, community colleges reflect the economic, social, cultural, and political characteristics of the province or territory in which they are located. Similarly, they reflect the requirements of the province or territory concerned for skilled labor, as well as the changes in these requirements over time. There is thus significant diversity among the various provincial and territorial community college systems.

The above notwithstanding, a number of institutions and mechanisms facilitate interaction between the national and provincial (or territorial) levels of government in the provision of education in general, and vocational education in particular. One such institution is the Council of Ministers of Education Canada, the membership of which includes all 13 provincial and territorial ministers of education. This intergovernmental body provides a forum at which policy issues pertaining to education are discussed, including policy toward skills development at the postsecondary level. Similarly, the federal-level Department of Employment and Social Development is responsible for employment and skills development policies at the national level. Finally, Industry Canada formulates and implements policies relating to innovation.

Labour Market Development Agreements (LMDA) and Labour Market Agreements (LMA) constitute other mechanisms by which the national and provincial levels of government interact in Canada, particularly as this relates to skills development. Negotiated bilaterally between the federal government and each province and territory, these agreements are central to federal government policies and support programs. For example, under LMDAs, the federal government provides funding to provinces and territories that support the design, delivery, and administration of skills development and employment programs for unemployed Canadians, those eligible for employment insurance benefits in particular.

Similarly, LMAs fund provincial and territorial labor-market programs and services, particularly those offered to low-skilled workers and unemployed persons not eligible for employment insurance benefits. Canadian colleges and institutes actively participate in delivering the training programs offered under these agreements.

Moreover, given the federal government's responsibility for national economic policy, it provides funding for postsecondary education through a number of channels. These include funding for (i) occupational retraining, (ii) learning of Canada's two official languages, (iii) financial assistance provided to students, (iv) programs that fund education for

aboriginal students, and (v) research grants. Funding for postsecondary-level education was also provided under the Technical and Vocational Training Assistance Act, which made further federal funding available for technical and vocational education (Lyons et al. 1991). The ultimate purpose of such federal-level funding is that of accelerating the pace of economic development through ensuring a supply of labor-market entrants with skills appropriate to Canada's national economic development strategy.

From a broader perspective, a primary role of the Canadian federal government is that of initiating policy dialogue on issues of national interest, higher education and training being of particular concern in this regard, given their direct link to long-term economic advance. For this purpose, the Expert Panel on Skills was appointed by the federal government in 2000. This body recommended that Canada (i) expand the capacity of the country's colleges and universities to perform high-quality basic and applied research, (ii) improve the capacity of its postsecondary institutions for meeting the skills requirements of employers and students alike, (iii) improve the country's capacity for upgrading the overall skill level of Canada's labor force, and (iv) make lifelong learning accessible to all Canadians (Expert Panel on Skills, 2000). Canada's community colleges were assigned a significant role in implementing these recommendations.

Primary Characteristics of the Canadian Community College System

As mentioned above, diversity is a primary characteristic of Canadian community colleges (Dennison and Levin, 1988; Gallagher and Dennison, 1995), a fact that echoes the significant diversity of Canadian communities. For example, Ontario's colleges of applied arts and technology are vocationally oriented, while Alberta and British Columbia comprehensive colleges have a significant university transfer component. Saskatchewan's "colleges without walls" operate more as education brokers than as service providers in rural areas, while its technical institutes predominate in urban areas (Elsner et al. 2008). In contrast, short-term work-entry training is a primary feature of the technical colleges in Manitoba, New Brunswick, Newfoundland, the Northwest Territories, and Yukon Territory (Gallagher and Dennison, 1995). For its part, Quebec's distinctive model features tuition-free colleges of general and professional education (collèges d'enseignement général

et professionnel) that offer 2-year pre-university education that is mandatory for students who ultimately attend university. In addition, they offer 3-year career preparation programs.

The above notwithstanding, Canadian community colleges have in general evolved toward greater similarities over time. Table 2 compares the distinguishing features of the college systems of the various provinces and territories that prevailed during 1965–1975 with those of the present day.

Table 2: Changes in the Distinguishing Features of Community College Systems in Canadian Provinces and Territories over Time

Features at the start of community colleges	
Province or Territory	Distinguishing Features
Ontario and Prince Edward Island	The community colleges of these most and least populated provinces were originally intended to complement university education. They primarily served young people ineligible for university admission. Major orientation was preparation for labor force participation.
Alberta and British Columbia	Comprehensive community college systems modeled after those of California. Combined university transfer programs with technical-vocational programs. However, British Columbia's community colleges provided second-chance opportunities for adults. In contrast, in Alberta, most second-chance students were directed to government-run vocational centers established throughout the province.
Manitoba, New Brunswick, Newfoundland, the Northwest Territories, and Yukon Territory	Postsecondary vocational-technical colleges lacked a university transfer function. Heavier emphasis on short-term work-entry training programs than on advanced technical education.
Saskatchewan	A combination of “colleges without walls” in rural areas and technical institutes in urban areas. Until the late-1980s, the former operated as education brokers rather than service providers in that they arranged for provision of education by other institutions and community agencies. Following this, rural community colleges began providing, as well as brokering, educational services.

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Table 2 *continued*

Features at the start of community colleges	
Province or Territory	Distinguishing Features
Québec	A system of colleges of general and vocational education that is tuition-free for full-time students. Comprises two streams: (i) a university preparation stream of 2 years, which is required for any Quebec student intending to attend a Quebec university; and (ii) a career preparation stream of 3 years. While not originally intended to emphasize adult education or short-term vocational training, soon became active in both.
Present day features of community colleges	
• Evolution toward greater similarities: ♦ most offer postsecondary certificates and diplomas, and many offer degrees, more recently, some offer post-graduate programs; ♦ nearly all include a university transfer component; many offer baccalaureate degrees; ♦ while applied learning remains a central focus, nearly all colleges now engage in applied research; ♦ the approach of all colleges is learner-oriented; all provide a significant array of services to students; ♦ most have internationalization policies and curriculum, and participate in international development projects, often in collaboration with other Canadian colleges. • Québec alone has retained the primary aspects of its original model (general and vocational education; tuition-free for full-time students; two streams: university preparation and career preparation).	

Source: Dennison, J. & P. Gallagher (1995).

According to Skolnik (2004), the primary reason for the Canadian community colleges models’ evolution toward similarity is endorsement of greater diversity within each college system. This diversity allows each college to fulfill nearly every function that a community college could possibly perform. Similarly, in general, Canadian colleges have also evolved toward greater integration with other postsecondary institutions, universities in particular.

A further factor driving the evolution of Canadian community colleges toward similarities is a common set of Canadian values that both shape national development and accommodate increasing immigration and integration of peoples from a broad array of countries and cultures. These

quintessentially Canadian values find their expression in the following characteristics of Canadian community colleges:

- **Accessibility and inclusiveness:** access to continuing education for all, including older persons entering or returning to college, aboriginal peoples, immigrants, and disadvantaged members of society.
- **Affordability:** low (and in some cases, zero) tuition fees; availability of government-provided financial aid to eligible students.
- **Community-based:** Canadian colleges interact with, respond to, and serve the communities in which they are located, and often engage in community development initiatives.
- **Interaction with employers:** applied education, skills development, and employment are all promoted; employers actively participate in college governance and program formulation; internships and other applied learning opportunities are readily available.
- **Student-centered:** the student is the central focus of college education and skills development.
- **Focus on applied learning and applied research:** educational programs emphasize employable skills.
- **Nimbleness and flexibility:** numerous educational pathways and transferability options exist, both between programs and between institutions; community colleges have significant operational autonomy, which permits quick and flexible responses to changing employer requirements.
- **Open to the world, new learning opportunities, and internationalization:** Canadian colleges emphasize international education including students, teachers, and personnel exchange; international partnerships are likewise emphasized.

Comprehensive Nature of the Canadian Community College Curriculum

Canadian community colleges offer a broad range of educational programs. Further, these vary widely in terms of subject matter, duration, learning methodology, location (multiple physical and online campuses),

time of study (day and evening), intensity (part-time and full-time), and student-type (youth, older adult, working, unemployed, under-employed, and retired). Skolnik (2008) views the comprehensiveness of the Canadian college curriculum as “one of the most fundamental characteristics of Canadian community colleges.” Further, Canadian community colleges increasingly provide contract training to local firms customized to their particular requirements. They also provide consulting services to these clients.

Further, central to Canadian community college curriculum development is competency-based education, which focuses on attainment of the knowledge and skills that pertain to each student’s individual occupational goal. Because it focuses on each student’s strengths, requirements, and learning style, each is able to progress at his/her own rate. This makes the individual learner the primary focus of the educational process.

Many Canadian community colleges also employ the DACUM (Developing A Curriculum) method as a complement to competency-based education in formulating curricula for individual occupational training programs. Originally used for analyzing the requirements of particular vocational occupations, the DACUM methodology is now widely employed in Canada in government, business, and industry, as well as in education. The fundamental assumption underlying DACUM is that expert workers are able to describe their job better than anyone else. As a result, the DACUM methodology first identifies all tasks to be performed. Following this, the knowledge, skills, and tools necessary for performing each task identified are determined (Joyner, 1995). DACUM analysis thus complements competency-based education in curriculum development by identifying what students should learn, while competency-based education describes how they should learn it.

Governing Mechanisms and Local Community Involvement

A distinguishing feature of Canadian community colleges is that, for the most part, they were created by government (Skolnik, 2004). As a result, one of the primary roles of these institutions is to serve as instruments of economic development. They thus do not enjoy the same level of autonomy as Canadian universities. While they do enjoy a substantial amount of *procedural* autonomy, all public colleges and institutes must comply with all government laws, policies, and directives (Skolnik, 2004).

Further, because community colleges are closely associated with the geographic areas they serve, the local community has significant say in both their day-to-day functioning and their governance. Canadian community colleges could thus best be thought of as operating under a multipartnership model.

For example, the membership of governing boards of Canadian community colleges includes representatives of employers, industry, community groups, local government, and, in some cases, the administrative staff, faculty, and students of the institution concerned. This accounts for the flexibility, adaptability, and responsiveness to community needs of the community colleges. Further, these governing boards even hire the college president, who reports to them on a regular basis (Brennan, 2014).

Finally, the role of the business community in college governance extends far beyond representation on the governing board. Local employers are likewise members of college program advisory committees that advise on every technical and vocational program offered by the institution concerned. Together with employee associations, employers also provide advice on curriculum standards and priorities. The DACUM and competency-based education methodologies discussed above are useful vehicles for formulating such advice.

Accountability and Results-Based Management

Some of the control over Canadian community colleges previously exercised by provincial governments has gradually been replaced by results-based accountability mechanisms, and in some cases, even performance-based funding.³ Instituted in Alberta, British Columbia, and Ontario more than a decade ago, results-based accountability has since expanded to community colleges in a number of provinces. The results-

³ As reported by Howard and Edge (2014), less than 2% of funding provided to postsecondary-education institutions by the Ontario and Québec governments is based on performance. In Ontario, performance is measured by graduation rates, graduate employment rates 6 months following graduation, and graduate employment rates 2 years following graduation. Several provincial governments also use strategic funding to increase enrollment in areas of existing or projected skills shortages, or to support specific government priorities (Ibid).

based accountability mechanisms used by British Columbia and Ontario briefly described below provide examples of how Canadian community colleges employ both accountability and results-based management.

British Columbia's Advanced Education Accountability Framework

In use since 2003, British Columbia's accountability framework focuses on five overall objectives: *access, capacity, efficiency, quality, and relevance*. Updated annually, specific performance measures relating to each of these objectives determine the degree to which each objective is being achieved

The performance measures used for academic year 2013/2014 were the:

- rate at which high school students enroll in public postsecondary education;
- participation rate at each institution;
- year-to-year retention rate of each institution;
- total number of student spaces available in total, as well as in specific areas;
- number of credentials awarded;
- amount of sponsored research funding undertaken;
- number of aboriginal student spaces available;
- number of credentials awarded to aboriginal students;
- average time of completion of studies;
- degree of student satisfaction with the education provided;
- results of student assessments of the instruction provided;
- results of student assessments of their degree of skill development;
- results of student assessments of the usefulness of the knowledge and skills gained with regard to performing the job for which their education is preparing them;
- provincial unemployment rate;
- The rate of student loan repayment as a percentage of income.

All public postsecondary institutions in British Columbia are required to prepare institutional accountability plans and reports. These are then posted on the website of the British Columbia Ministry of Advanced Education, which may be found at (http://www.aved.gov.bc.ca/framework/accountability_plans.htm).

Source: Ministry of Advanced Education, Government of British Columbia. Accountability Framework. <http://www.aved.gov.bc.ca/framework/welcome.htm>

Performance Indicators Used by Ontario Colleges

Ontario's colleges of applied arts and technology have used an accountability framework comprising the following five indicators since 1998:

- graduate employment;
- graduate satisfaction;
- employer satisfaction;
- student satisfaction;
- graduation rate.

An external research firm collects data for the first four indicators through surveys of more than 40,000 graduates. Following graduation, former students are surveyed by telephone three times a year for this purpose. Data for the fifth indicator are provided directly by the college concerned.

In addition, the external research firm conducts telephone interviews with the employers of graduates who have given permission for their employers to be interviewed. Approximately 10,000 employers are interviewed annually to determine the adequacy of preparation for meeting employer requirements.

Colleges use the information collected from graduates and employers to improve their programs and services, and to demonstrate their achievements. Government then uses the information graduates and employers provide to reward colleges for these achievements.

Source: Forum Research. *Welcome to College KPI.com* <http://www.collegekpi.com> (last accessed: September 6, 2014)

Funding

The principal sources of funding for Canadian community colleges and vocational schools include (i) grants from provincial and territorial governments, and to a lesser degree, the federal government; (ii) contracts; (iii) tuition fees; and (iv) donations and grants from business firms, individuals, and non-profit organizations. Other sources include investment income, income from ancillary enterprises, and borrowings.

Provincial and territorial governments are by far the largest provider of funding to Canadian community colleges and vocational schools, their contributions averaging 63% of total funding in 2011/2012. That said, the percentage share in total funding provided by provincial governments funding varies significantly across provinces. Québec registers the largest percentage share in this regard at 89% (Lavoie, 2006). By comparison, tuition fees accounted for 22.1% of total community college funding nationwide in 2011/2012,⁴ while the share of the federal government registered 1.45% (Statistics Canada, 2014).

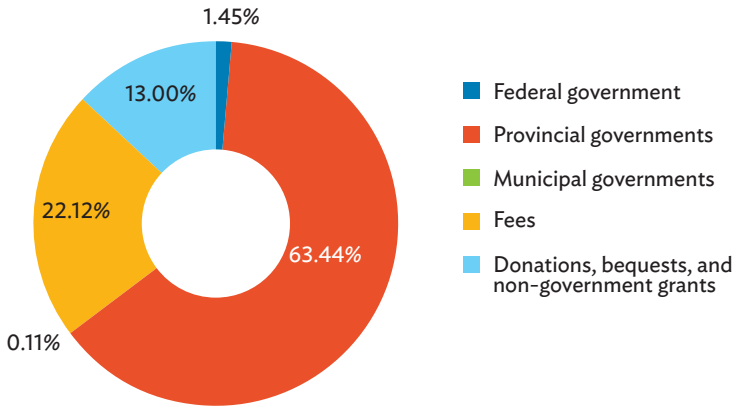
Over the past years, the percentage share in total funding to community colleges provided by the provincial governments has decreased, in some cases, falling from 70% to only 40% (Amyot, 2014). This unfortunately occurred during a period in which demand for postsecondary education grew considerably. This has challenged the ability of community colleges to offer both the variety and quality of education that are valued by industry and local communities, as well as the degree to which student services are provided.

The community colleges have responded in part to this decrease in funding by increasing fees, though this risks undermining affordability and accessibility, both of which are hallmarks of Canadian community colleges. For example, following introduction of fees for part-time students in Québec during the 1990s, the number of adult students fell by more than 50% in less than 20 years (Chenard and Doray, 2013). To the degree that fee increases reduce accessibility to college education, they widen economic and social inequalities, both of which are already on the rise in Canada and other industrialized countries.

A secondary response of Canadian community colleges and institutes to reduce funding has been to explore alternative sources of revenue.

⁴ In Québec, college education (at CEGEPS) is free-of-charge for full-time students.

Figure 1: Percentage Shares in Total Funding of Canadian Community Colleges and Vocational Schools by Funding Source, 2011–2012



Source: Statistics Canada CANSIM Table 477-0060.

For example, some colleges have developed training programs that cater specifically to the requirements of firms that face significant skill shortages, with these programs being funded by the firms concerned. This allows large firms in particular to outsource their workplace training.⁵ Similarly, attracting self-funded international students is also being used to both boost revenue and increase student diversity. Finally, applied research is an increasingly important source of revenue for Canadian community colleges and vocational institutes. In some cases, this research is so highly valued by private firms that they have even built laboratories and other research and development infrastructure on college campuses.

Leadership

As mentioned previously, the mission of Canadian community colleges differs significantly from that of other educational institutions. As a result, they require a type of leadership that likewise differs from that of more

⁵ <http://www.macleans.ca/work/jobs/companies-get-colleges-to-do-their-training/>

academic institutions. Of particular importance in this regard is the task of ensuring close links with the local community. This requires bringing together representatives of local firms, entrepreneurs, community groups, employers' and employees' associations, and students. Further, the person who heads a community college fulfills a wide range of roles, including managing administrative issues, planning, consulting with community groups, reporting on materiel, financial, and human resource issues, maintaining a close relationship with students, communicating with external stakeholders and government agencies, and developing and upgrading the curriculum.

In short, the role of such a leader is anything but bureaucratic. Further, despite the complex requirements of the position of Canadian community college presidents, no school teaches college leadership skills. As a result, this position requires the dedication of both management and teaching staff, as well as support from peers and community leaders. Networking is thus a requisite skill for leaders of community colleges. In this regard, Colleges and Institutes Canada has begun offering programs that provide training for prospective college presidents, vice-presidents, and managers.

Developing Employable Skills

Because educational attainment is closely correlated with employability, investment in employable skills is a primary driver of economic growth. In this regard, employable skills can be classified into three types:

- essential (also referred to as “fundamental,” “core,” or “generic”) skills
- technical skills; and
- job-specific skills.

Essential skills are necessary for a worker to function efficiently in virtually all workplaces. As a result, their attainment is positively correlated with labor market participation in general, the probability of an individual finding employment, and gains in wage income over time (OECD, 2013c).

Examples of essential skills include the ability to read, write, perform basic arithmetic calculations, use documents in a business setting, use computers, think critically, solve problems, communicate orally, and work with others. Further, such skills provide the foundation for learning all other skills. Thus, workers possessing essential skills are more able to advance within their occupations, innovate, and adapt to change

as compared with those lacking such skills. Ensuring that labor market entrants possess at least the basic set of essential skills is thus an efficient way to fulfill employer requirements.

Because job-specific skills are generally not transferable from one job to another, and do not provide a foundation for learning other skills, the role of postsecondary institutions should be to provide students first with essential skills that support future learning and thence career progression, and following this, technical or job-specific skills.

Finally, problems relating to performance, productivity, or integrating into a particular organizational culture are often caused by essential skills deficits rather than deficits of technical or job-specific skills. Further, because essential skills deficits mitigate against development of technical and job-specific skills, they are at least partly responsible for skills mismatches, and thus indirectly, skill shortages overall. Finally, the negative impacts of essential skills deficits tend to be magnified in the case of learners drawn from disadvantaged groups such as aboriginal people or recent immigrants. In light of the above, in collaboration with the Department of Employment and Social Skills Canada, Colleges and Institutes Canada has developed an *Integrated Approach to Developing Essential Skills* (ACCC, 2013b).

Developing Entrepreneurial Skills

Entrepreneurial skills facilitate innovation and development of small business. They are thus essential to building global competitiveness at the national level (Colleges and Institutes Canada, 2014). A number of Canadian community colleges provide training in starting a new business such as formulating business plans, organizing production, financing start-up businesses, choosing distribution channels, and marketing strategies.

Interestingly, efforts of Canadian community colleges in encouraging such entrepreneurial mind set among students led to a creative response to the economic downturn of 2008–2009. The Ontario Ministry of Training, Colleges and Universities had developed the Second Career Strategy as part of the government's three-year, \$1.5 billion Skills to Jobs Action Plan. The Ontario government served as a good example in responding to the demand for new, advanced skills by re-formulating their skills development initiatives. The result was that the Ontario Province initiative for second career was so successful that it dampened the negative impact Of the 2008-09 downturn on the Canadian economy as a whole.

Applied Research

Many small- and medium-scale firms lack either the financial means or the internal capability to perform research that enables innovation or increases in production efficiency. A number of Canadian community colleges interpreted this as an opportunity for turning the challenges of these firms into student-led applied research projects (Industry Canada, 2011). As a result, during the period 2012–2013, 5,444 colleges and institutes formed research partnerships with private-sector enterprises. Of this total, 78% were small- and medium-scale firms.

Such initiatives provide hands-on education that stimulates student interest in the acquisition of new skills. It also reinforces the existing relationship between community colleges and industry, and eases the school-to-work transition by allowing students to build relationships with future employers.

The College-Industry Innovation Fund launched by the Canada Foundation for Innovation provides community colleges with funding for acquiring research infrastructure that enables such partnerships. These initiatives both increase the applied research capacity of community colleges and strengthen their participation in college-industry partnerships. The value that business places on such initiatives is evident from the fact that in 2012–2013, the private sector became the largest provider of funding for applied research performed at Canadian community colleges.

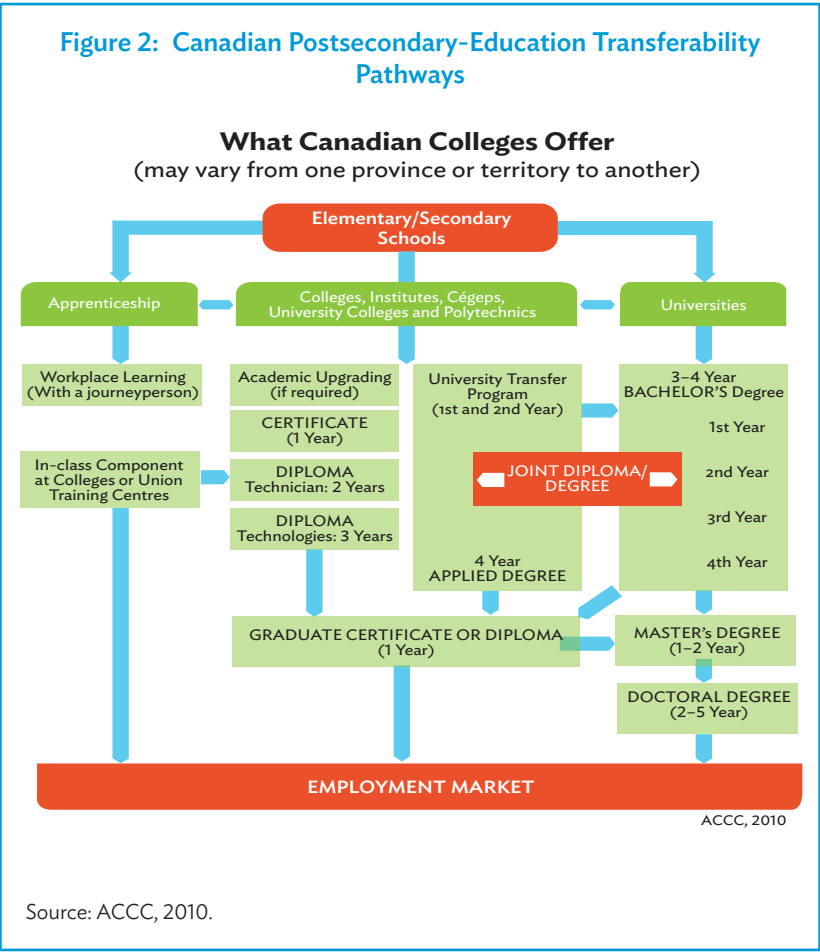
Postsecondary Pathways and Transferability

Conceiving the Canadian community colleges simply as a mezzanine, as a mid-way between high school and university, is misleading and ignores the more complex reality, purpose, and multiple functions of those institutions (Levin, 2002). In fact, the colleges offer a variety of program options, that allow students to navigate from high school into college, and within the postsecondary education system, between colleges and between colleges and universities. Figure 2 summarizes these pathways.

As Wang (2012) observed, vocational education “tends to be a dead end

in many countries: once a student enters the vocational track, he or she may lose the opportunity for any further education, regardless of his or her academic improvement or motivation to learn.” The opposite is true in Canada, where transfers are both encouraged and frequent (LeSage et al, 2014). Another advantage of the Canadian community college system is that Canadian youth benefit from a relatively long stay in general secondary school. Unlike some other countries in which students must choose between a vocational or academic education path early in their lives, Canadian youth have the advantage of greater maturity of age

Figure 2: Canadian Postsecondary-Education Transferability Pathways



when making such decisions. Box 2 presents the advantages of the Canadian postsecondary education model as compared with other OECD countries.

Box 3 further expounds on the economic benefits that the Canadian community colleges and institutes bring to the country's economy.

A total of 34 colleges, institutes, and polytechnic institutions now have provincial authority to grant baccalaureate degrees. Most of these institutions are located in Alberta, British Columbia, Manitoba, Ontario,

Box 2: Postsecondary and College Education Outputs in Canada

In Canada, the proportion of adults aged 25–64 with tertiary education (the equivalent of college and university completion) increased from 42% in 2001 to 51% in 2011—the highest rate among OECD countries. Between 2000 and 2010, the number of college graduates increased by 35% (Statistics Canada, 2014, CANSIM 477-0062).

In 2011, 25% of 25- to 64-year-olds in Canada had completed tertiary-type B programs, far greater than the average of 10% reported by the OECD for its member countries. (Tertiary-type B programs are typically shorter than those of tertiary-type A (typically four years and more), and focus on practical, technical, or occupational skills for direct entry into the labor market, although some theoretical foundations may be covered in the respective programs. They have a minimum duration of two years full-time equivalent at the tertiary level (OECD, 2003). In Canada, tertiary-type B includes non-university certificates or diplomas from community colleges, *CEGEPs*, or schools of nursing, as well as university certificates below the bachelor's level.

The proportion of women who had successfully completed tertiary-type B programs (28%) was higher than the proportion of men (21%). In the traditionally male-dominated areas of trades and apprenticeship (“postsecondary non-tertiary” education), attainment was more common among men (15%) than women (8%).

In 2011, in and throughout Canada, the employment rates among the 25- to 64-year-old population were clearly highest—beyond 80%—among individuals who had a college or university credential, compared to 55% for adults aged 25–64 who had not completed upper secondary education (high school).

Source: Statistics Canada (2014), Education Indicators in Canada: An International Perspective 2013 (81-604-X).

and Prince Edward Island (ACCC, 2011). This allows these institutions to both provide expanded educational opportunities for students, and to better respond to the requirements of the private sector. Similarly, the baccalaureate degree programs offered by Canadian community colleges combine the advanced theoretical education available at university with high-level technical and applied education, thereby increasing the competitiveness of Canadian industry (Skolnik, 2008). Further, Canadian colleges and universities are increasingly offering joint programs together with other institutions of higher learning.

Prior Learning Assessment and Recognition (PLAR) services encourage students to extend their education by allowing credit for knowledge gained from life experience, regardless of whether this was gained through formal education or work (ACCC, 2011) (see Box 4 in Chapter III below). PLAR also allows students with non-Canadian credentials to receive credit from the education and experience they obtained elsewhere.

Box 3: The Contribution of Colleges and Institutes to the Canadian Economy

Canadian colleges and institutes have a substantial positive impact on the national economy through their unique contribution to development and renewal of the Canadian workforce and reinforcement of the nation's human capital. While it is difficult to calculate the direct contribution of colleges and institutes to the economy because of the multiple ways it occurs, a 2008 study commissioned by ACCC and conducted by Economic Modelling Specialist Inc. (EMSI) estimated the overall contribution of colleges and institutes at \$123.2 billion (nearly 8% of national income), which is the approximate equivalent of 1,350,000 jobs. College graduates enjoy higher earnings than workers with only secondary-school diplomas, and therefore have greater purchasing power and pay higher taxes. Every dollar of provincial and territorial tax money invested in Canada's colleges and institutes in 2008 was estimated to return \$4.21 in a payback period of only 8.7 years.

This study also concluded that colleges and institutes produce additional benefits from (i) improved health (savings include avoided costs related to health care, prevention, and research, workplace losses, and productivity losses); (ii) reduced welfare and unemployment payments (fewer people on welfare or drawing unemployment benefits), and (iii) reduced crime, collectively saving the public some \$215.1 million per year.

Source: EMSI (2008), *The Economic Contribution of Canada's Colleges and Institutes* (Study commissioned by the Association of Canadian Community Colleges).

Finally, 1-year graduate certificates and diplomas offered to college and university graduates help students obtain study-related employment. Such credentials have in fact become a significant source of highly qualified workers for employers.

Learner-Centered Philosophy

One of the major—though often invisible or underestimated—factors in the performance of a particular college is the approach that institution takes to ensuring student success through the provision of student support services. Such services not only encourage success in learning, but also in job placement, thereby reinforcing student retention.

A broad range of such services is available to students in all Canadian community colleges. These include

- counseling and psychological support;
- program advising (e.g., advice relating to academic programs and requirements, application processes, program costs, and job placement opportunities);
- learning services (e.g., peer tutoring, library facilities, and online resources);
- career advising;
- student health services;
- student employment and job placement services;
- financial aid;
- services to students with disabilities;
- services that provide safety and security to students;
- housing services (for both on-campus and off-campus housing);
- sports and recreation activities;
- transportation and carpooling; and
- entrepreneurship.

These services are closely related to and support the open-access policy of Canadian community colleges.

Summary of Factors in the Success of Canadian Community Colleges in Skills Development

The primary factors that have contributed to the success of Canadian community colleges in skills development include the following

- focus on accessibility, inclusiveness, and diversity;
- close relationship with local community;
- sensitivity to the requirements of local employers;
- openness to local-employer involvement in skills development programs and college governance;
- college governance that employs a multi-partnership model including representatives of local firms and community associations, as well as staff, faculty, and students representatives, thus building a common commitment to skills development outcomes;
- operational autonomy and flexibility as the result of institutional decentralization;
- modern performance-based accountability mechanisms;
- curricula that emphasize essential skills first, but that also include technical and job-specific skills;
- curricula that include entrepreneurial skills development programs;
- a broad curriculum that includes a wide range of subject matters;
- programs of varying duration with flexible time arrangements;
- a broad range of teaching and learning methodologies;
- a student body representative of the entire local community;
- use of applied research as a means of strengthening linkages with local employers and industry, and creating new opportunities for both student employment and job placement;

- a broad range of options for transferring between secondary and postsecondary; education, as well as between community college and university
- comprehensive student support services that facilitate and encourage student success and retention; and
- leadership that relates well to local-community stakeholders.

Contemporary Challenges

Decreasing revenues from governments, which fund public college education, contrast with increasing demand for postsecondary education and college enrollment. Reduced government funding can negatively impact the colleges' capacity to offer the variety and quality of educational programs valued by industries and communities, as well as student services supporting the success of these programs. The constant increase in fees in order to compensate for the decrease in government funding risks undermining college education's accessibility and affordability, which are the hallmarks of community colleges.

Decentralization, which plays a major role in the colleges' flexibility and nimbleness, also presents some challenges in light of a coherent national approach to skills development. The absence of a federal ministry of education hinders the establishment of certain important nationwide skills development initiatives such as a national skills development strategy and a national college database and performance measurement system. This also poses a challenge in terms of representation by Canadian colleges on the international scene, including, at times, their involvement in international projects. While Colleges and Institutes Canada (CICan) aims to fill this gap within its prerogatives as a national volunteer membership and not-for-profit association of Canadian public colleges, its efforts cannot entirely replace a well-organized government structure and national strategy.

Canadian Community Colleges as International Development Partners

Internationalization of Postsecondary Education and Skills Development

Emerging in the final decades of the 20th century, the digital era enabled globalization, a phenomenon that changed the set of skills required to function in the world. Perhaps more importantly, globalization caused Canadian community colleges to reassess the manner in which skills are acquired, to redefine the basic competencies required of workers, and to encourage their internationalization.

In this regard, a study by the Canadian Bureau for International Education found that 91% of the employers interviewed said that studying abroad produced significant benefits. The same study also identified the skills employers saw as being the most relevant in a globalized world. These include: (i) independence and self-reliance, (ii) openness to cultures and ethnic groups other than one's own, (iii) adaptability to unfamiliar environments and languages, and (iv) general life skills (ACCC, 2010).

These results suggest that Canadian community colleges are not only expected to teach skills relevant to the global economy, but also to facilitate learning in countries and cultural contexts outside the home country. Conversely, colleges are now expected to host international students and faculties, and to take part in international cooperation projects. For their part, international students are now viewed as bringing a global perspective into college classrooms, which enriches the college experience of all students. Adapting to this new world presents a challenge to Canadian community colleges, in that it requires a significantly broader vision on their part than previously. The same is true of their leadership.

Evolution of Canadian Community College International Programs

As early as the 1970s, Canadian community colleges had active international exchange programs, and had enrolled their first international students (ACCC, 2012). Further, by 2010, more than 60% of Canadian community colleges were engaged in internationalization activities, while nearly 70% had established an office dedicated to international activities (ACCC, 2010).

Many of the projects undertaken by Canadian colleges were funded by the Canadian International Development Agency (CIDA), whose Canadian Partnership Branch supported the involvement of Canadian colleges in international development. The latest such program, the Canadian Colleges Partnership Program, is a mechanism through which the Canadian Partnership Branch supports and provides funding for partnership activities between Canadian and developing country education and training organizations. The Program is managed by the Association of Canadian Community Colleges under a contribution agreement with CIDA, and is funded through the Universities and Colleges Program. Perhaps the most successful of these initiatives was the *Mulheres Mil* (A Thousand Strong Women) project described immediately below.

The *Mulheres Mil* Project: Skills for Inclusive, Sustainable Growth

Origin and Evolution of the *Mulheres Mil* Project

During the first years of the new millennium, several bilateral initiatives brought Brazilian *institutos federais* (federal institutes [of vocational education]) and Canadian community colleges together. These initiatives laid the foundation for the *Mulheres Mil* (Thousand strong women) project, which began with a pilot stage in 2006, and reached full scale in 2007. A major accomplishment of this project was that it demonstrated empirically that providing unskilled labor with access to postsecondary education helps to both reduce skill deficits and to increase income at the household level.

The logic underlying the *Mulheres Mil* project was simple: use the institutos federais to provide quality education to unskilled women in one of Brazil's poorest regions. Central to the *Mulheres Mil* project was use of Prior Learning Assessment and Recognition (Box 4). Used for decades by Canadian community colleges, PLAR leverages life-experience into increased employment opportunity by valuing life-experience in terms of college credits. A small group of Canadian college leaders already involved in development projects in Brazil conceptualized the foundation of the *Mulheres Mil* project, which was enthusiastically received by their Brazilian counterparts.

Initially, Niagara College (Ontario) partnered with *Centro Federal de Educação Tecnológica do Rio Grande do Norte* (the Federal Technological Education Center of the [Brazilian] state of Rio Grande do Norte, or CEFET/RN). Together, these two institutions developed the first training program. This initiative focused on tourism, or more specifically, on increasing the opportunities available to disadvantaged women for gainful

Box 4: Prior Learning Assessment and Recognition

PLAR assigns college credits to skills acquired through employment; life experience; training; formal education whether accredited or not; and volunteer work. It is used in a number of contexts, including postsecondary education, professional certification, and vocational training.

While colleges, universities, and professional licensing and certification bodies use written tests in using PLAR to assign college credit to an applicant's life experience, demonstrations, structured interviews, or presentations of portfolios, examples, or products can also be used for this purpose.

PLAR results in multiple benefits. It improves access to education when formal credentials are not recognized or well understood, it places learners at appropriate levels in educational programs, and it reduces the in-class time required to earn a credential, thus reducing the overall cost of education borne by the student. There is also some empirical evidence that PLAR improves learner confidence, self-esteem, and motivation to learn.

Source: Canadian Information Centre for International Credentials: <http://www.cicic.ca/399/prior-learning-assessment-and-recognition.canada#top>; Harris, J. M. Breier and C. Wihak (2011), *Researching the recognition of prior learning: international perspectives*. Leicester, England: NIACE, 2011.

employment in the tourism sector. By 2005, this initiative had successfully created employment for 60 women. As a result, it was consolidated into the pilot stage of the *Mulheres Mil* project.

To efficiently scale-up the *Mulheres Mil* project, *Secretaria de Educação Profissional e Tecnológica* (the Secretariat of Professional and Technological Education, or SETEC) joined forces with CEFET-RN and the Association of Canadian Community Colleges in formulating a proposal that would expand the *Mulheres Mil* project under the auspices of Brazil's Federal Network of Technological Vocational Education. Ultimately, *Agência Brasileira de Cooperação* (the Brazilian Cooperation Agency, or ABC) and CIDA jointly funded the expanded *Mulheres Mil* project.

However, CIDA funding was provided to this project with the understanding that it was Brazilians who owned the project, its processes and outcomes, and that rather than constituting a transfer from Canada to Brazil, the *Mulheres Mil* project required that Brazil create its own model and practices, albeit with Canadian assistance (Interviews with Bernard Lachance, Jos Nolle, and Marti Jurmain, initiators of *Mulheres Mil*).

Women were deliberately chosen as *Mulheres Mil* beneficiaries, because a large amount of empirical evidence had already demonstrated that each unit of human capital invested in female beneficiaries produces greater income growth than does an equivalent investment in males (Coulombe and Tremblay, 2005). Further, *Mulheres Mil* beneficiaries comprised young and mature women, most of them mothers. This allowed the benefits of income growth produced by the project to expand to the beneficiary's entire household, and in some cases, even to succeeding generations of the beneficiary's household.

Prior to the *Mulheres Mil* project, all development initiatives conducted by *institutos federais* focused on high-end beneficiaries; academic upgrading programs for non-traditional learners did not exist, and employment assistance was rare. However, the Brazilian teams quickly learned the benefits of open access, which is at the heart of the Canadian college system. This quickly translated into a number of operational access support structures, including access offices located at the very front of institute buildings to ensure maximum visibility. Essential skills and on-the-job skills training programs, career counselling, job placement services, follow-up systems, and close relationships with local employers and communities soon followed.

Both the Life Map exercise and the Portfolio Tool were integrated into *Mulheres Mil* activities early on (Niagara College, 2014). The Life Map exercise reinforces the understanding of project beneficiaries that they already have knowledge that can be used to increase household income, and that this foundation can be expanded to leverage further increases. The Portfolio Tool assembles personal documents, work samples, resumé details, and personal narratives into a format that can be used to expand household income through gaining employment or funding entrepreneurial activities.

Achievements of the *Mulheres Mil* Project

A major achievement of the *Mulheres Mil* project was regularization of enrollment of disadvantaged students. Legally, only students who had passed the requisite entrance examination could enroll in federal institutes. However, in response to the objectives of the *Mulheres Mil* project, the federal institutes developed legal pathways for matriculating *Mulheres Mil* beneficiaries. Examples include notarized selection processes, approval by institute boards of directors, and matriculation through Projea-FIC (*Programa Nacional de Integração da Educação Profissional com a Educação Básica - Formação Inicial e Continuada*) (National Program for the Integration Between Professional and Basic Education for Young People and Adults - Initial and Continuing Training) programs. Most federal institutes have now formalized matriculation of such applicants into the integrated system of the Federal Network of Technological Vocational Education (ACCC and MEC, 2011).

A second major achievement of the *Mulheres Mil* project was that all participating federal institutes developed a methodology that ensured access, retention, and success on the part of disadvantaged female students that could be expanded to other educational institutions, and could be applied to other marginalized populations wishing to pursue professional or vocational education.

The offer of bursaries for the support of disadvantaged students made to the federal institutes that provided work plans to SETEC-MEC was a third major achievement of the *Mulheres Mil* project. Given the living conditions of the *Mulheres Mil* beneficiaries, such financial support enabled many of them to complete their educational programs (ACCC and MEC, 2011).

Similarly, the *Mulheres Mil* Reference Center was established, in part for the purpose of spreading the methodology used by the project, following-

up on its expansion, training network resource persons, and overseeing research, as well as the design of educational materials (Rosa, 2011). The Center also developed standardized methods of project evaluation that integrated beneficiary satisfaction into the overall project assessment process (Niagara College, 2014).

A number of elements of the *Mulheres Mil* project were included to minimize project delivery risks. First, bus tickets were provided to beneficiaries to help defray transportation costs, which helped ensure completion of their programs. Second, community organizations with which project beneficiaries were familiar and comfortable participated in project implementation, promotion of the *Mulheres Mil* project itself, and presentation of orientation sessions, as well as some of the training.

Finally the federal institutes worked closely with local employers to guarantee the acceptance of beneficiaries into the labor market, in many cases through *Mulheres Mil* subprojects. This created a sense of project processes belonging to the local community, and by extension, continuity of project outcomes, regardless of changes in project personnel (ACCC and MEB, 2011).

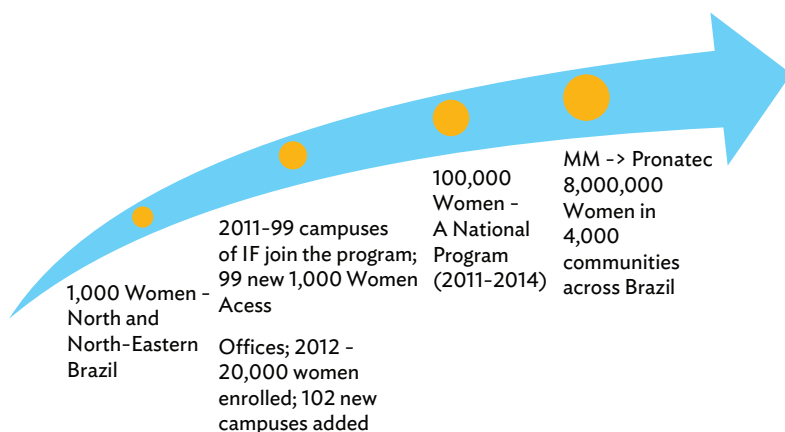
Project beneficiaries comprised a diverse group in terms of age, educational attainment at the onset of the project, family situation, degree of support afforded them by friends and family, health status, and work experience. Most were wives and mothers. The common features of their lives that united them were the poverty in which they lived, and the fact that like most mature learners—regardless of the country in which they live—most lacked self-confidence. Almost without exception, at the onset of the project, most were experiencing problems relating to child care, transport, extended periods of unemployment, and a lack of education or training. As a result, the holistic approach adopted by the project was essential to its success.

The success of the *Mulheres Mil* project was on such a scale that it ultimately evolved into a national program, which spread project benefits to all regions of Brazil (Figure 3). Further, the Brazilian government included it as one of the components of the “Brazil without Poverty” Plan, which is one of a set of official government priorities for promoting equity and gender equality, stopping violence against women, and providing women with access to education and to the labor market (Albuquerque, 2012).

The beneficiaries of what began as the *Mulheres Mil* project have now expanded to include millions of disadvantaged women. Further, the project ultimately influenced the way employment and social programs are formulated in Brazil, and has now become a part of Brazil's official public policy. Thus ultimately, the *Mulheres Mil* project demonstrated that economic and social policies are inextricably related, and that skills development transcends the sphere of economic activity to include social change.

In October 2011, the Brazilian Presidency enacted a law creating the National Program for Access to Technical Education and Employment (*Programa Nacional de Acesso ao Ensino Técnico e ao Emprego* or *PRONATEC*). The objective of this program is to help young people and workers upgrade their labor market qualifications as a means of increasing their income levels, and thereby to increase productivity in the Brazilian economy at large.⁶

Figure 3: Growth in *Mulheres Mil* Project Beneficiaries



Source: data derived from ACCC and MEC, 2011, and Albuquerque, 2012.

⁶ http://www.loc.gov/lawweb/servlet/lloc_news?disp3_l205402888_text

Lessons Learned from the *Mulheres Mil* Project

- Policies for accelerating economic growth and reducing social inequality are inextricably intertwined. Thus, in addition to being an economic activity, skills development is an essential vehicle for promoting social cohesion.
- Holistic, community-based approaches to project implementation result in project benefits that extend beyond beneficiaries to local-community residents and employers.
- Allowing non-traditional learners access to vocational training can vastly expand the supply of skilled labor in emerging economies, and can as well promote social inclusion.
- The beneficial impact of investing in female skills development is intergenerational, in that its economic influence on project beneficiaries extends to the children and grandchildren of beneficiaries, and even beyond.
- Nontraditional learners—those from disadvantaged groups in particular—require inclusive approaches to personal empowerment through skills development and employment such as through recognition of previous learning and experience.
- Nontraditional learners tend to be stimulated by self employment. Development of entrepreneurial skills should thus not be neglected in skills development initiatives.
- If beneficial project outcomes are to be maximized, education systems used in implementing skills development initiatives must allow legal and administrative procedures to evolve in a way that ensures open access to persons lacking prior higher education or vocational qualifications.
- Appropriate leadership of both people and institutions is critical to successful implementation of skills development initiatives at all stages of the project cycle. This is true from generating a practical idea for a project, to its design and implementation, to transferring the knowledge gained to other projects and initiatives. Political and government support is vital to the success and growth of initiatives such as *Mulheres Mil*.
- Systematic assessment of project impacts is necessary to (i) understand the factors that led to project success, (ii) improve accountability, and (iii) improve future initiatives, as well as their outcomes. A logical framework formulated at the onset of

the project design stage improves project objectives, expected results, performance indicators, and risk indicators.

- Overcoming communication barriers—in terms of both language and culture—early on in project implementation (e.g., by hiring interpreters, or by providing language and cultural training to team members) is critical for smooth project implementation when input from persons with varying linguistic backgrounds is required.
- When successful projects are scaled up—particularly to the national level—a major challenge is that of preserving the project elements that led to initial success, as often the temptation is to surrender quality when quantity is expanded. In the case of the *Mulheres Mil* project, a core element was PLAR. However, at later stages of the project, not everyone working with *Mulheres Mil* students was trained in this technique, which risked negatively impacting project outcomes. While skills development projects such as *Mulheres Mil* must reach as many beneficiaries as possible, the quality of project outcomes must be maintained if the benefits of the initiative’s scaling-up are not to be put at risk.
- The Canadian approach of “facilitation rather than exportation” (i.e., ensuring that ownership of a project remains in the hands of the beneficiary country) is critical to project success in the medium term, as well as long-term project sustainability.

The VELT Program: Building Leadership for Skills Development Institutions

Overview of the VELT Program

Globalization has highlighted not only skills mismatches, but also the need to make educational institutions more responsive and future-oriented. Institutional leadership is critical in this regard, as it impacts all aspects of the institution, including its faculty, its students, the community it serves, and ultimately even the views of policymakers charged with shaping the future course of education. The above is particularly true of vocational educational institutions in developing economies.

These institutions often lack of a tradition of leadership development. This causes their policies, programs, and administrative structures to fall short of their potential beneficial impact. The objective of the Vocational

Education Leadership Training (VELT) program in the PRC was thus to build leadership capacity at vocational education institutions.

Vocational education and training is now considered to be central to the PRC's education system. Over 2000–2006 the number of polytechnic institutions and other tertiary vocational institutes in the PRC increased from 442 to 1,147 (i.e., by a factor of 2.6). That said, when compared with an ideal, balanced educational structure for the PRC, vocational education is still viewed as a weak area. For that reason, in 2009 the government designated vocational education and training as a primary target of its education promotion program (Yan, 2010).

As a result, in 2010, the Ministry of Education issued an *Action Plan for Reform and Innovation in Secondary Vocational Education* (2010–2012). Then 1 year later, it issued its National Plan for Building a Highly Skilled Workforce 2010–2020 (Shi, 2012b). To address the problem of “higher education institutions being run as administrative institutions,” the National Plan for Medium and Long-Term Education Reform and Development (2010–2020) proposed “separation of administrative and school operational functions,” and elimination of the de facto administrative management model.”⁷

In short, the VELT program was a direct response to the leadership development requirements of the PRC's vocational education and training system. A primary component of the National Project of Demonstrative Higher Vocational Colleges, the VELT program was a 5-year (2008–2013) initiative of the Ministry of Education. However, the Ministry of Finance funded the program, and the Secretariat of the China Education Association for International Exchange (CEAIE) implemented it. A nationwide non-profit organization, CEAIE has established long-term working relationships with more than 170 educational institutions in 50 countries.

The primary objective of the VELT program was upgrading of the leadership of vocational education institutions in the PRC. This was to be achieved by having leaders of such institutions in the PRC experience the practices of similar institutions in other countries firsthand. This would in turn provide them with a knowledge base sufficient to allow them to upgrade their leadership of vocational education institutions in the PRC.

⁷ <http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/s3501/201010/109031.html>

A secondary benefit of this experience was to allow these leaders to explore practical ways in which they could use international cooperation to accomplish this goal (CEAIE, 2010).

An advisory committee comprising vocational education experts guided the VELT trainees at all stages of their training in the PRC. This committee further supported the trainees by assisting them in data and information collection, proposing research topics, and conducting presentations on how to write reports (CEAIE, 2010).

The VELT program comprised several types of activities: (i) training abroad, (ii) production of reports and discussion papers, and participation in (iii) working groups, (iv) focus groups, (v) seminars, and (v) briefing conferences.

The core of the VELT program was training abroad for a 1-month period. This allowed participants to experience firsthand how modern vocational education and training is carried out in countries with high-quality postsecondary vocational education systems such as Australia, Canada, Germany, the Republic of Korea, Singapore, the United Kingdom, and the United States. In 2010, 208 leaders from 148 higher education colleges from all provinces of the PRC were sent to Australia, Canada, Germany, Singapore, the United Kingdom and the United States. In 2011, 142 leaders from 112 national demonstration colleges and provincial higher vocational colleges were sent to Australia, Canada, Germany, the Republic of Korea and the United States (CEAIE, 2010).

By design, the age, occupational position, educational background, and regional representation of VELT participants was varied. This broad range of experience and perspective enriched the learning process, and in turn, improved program results. Figure 4 diagrammatically summarizes the eight-step VELT program, while Figure 5 depicts the overall VELT training process.

While VELT training comprised three stages and followed the same format in all destination countries, the program's content and activities were determined by the unique features of each country's vocational education system.

Following completion of their training overseas, members of training groups prepared reports summarizing their experiences abroad. The focus of these reports varied widely, as it reflected the particular area

Figure 4: The Eight-Step VELT Program

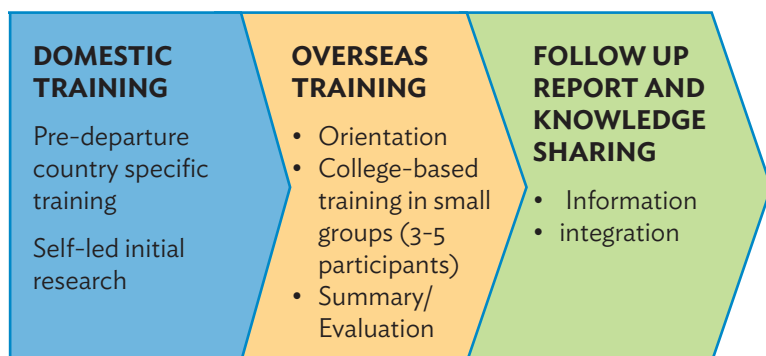


Source: CEAIE Annual Report, 2010.

of interest of each participant. For example, VELT participant reports addressed:

- college administration;
- cooperation between vocational education institutions and industry;
- curriculum development;
- planning;
- comprehensive comparison of institutions, methods, and curricula;
- management of teachers and quality assurance;
- professional development of staff;
- program design and delivery;
- student management and services;
- assessment of student abilities;
- overall characteristics of vocational education systems.

Figure 5: The VELT Training Process



Source: CEAIE Annual Report, 2010 and 2011.

Using their collective overseas experience as a foundation, each training group submitted a report that addressed how vocational education in the PRC might be improved.

Another VELT activity central to the program was seminars attended by representatives of VELT international partner organizations, such as the American Association of Community Colleges, the British College Consortium, and Colleges and Institutes Canada. While attendees at these events included representatives of vocational education institutions in the PRC, VELT alumni accounted for the majority of participants (CEAIE, 2010).

Performing comparative studies was also central to VELT activities. Studies on the following topics were encouraged: vocational education systems, teaching and training methods, college management and administration, involvement of government and industry in the operation of vocational education institutions, and professional development of teachers.

Canada was a primary destination for VELT training, in part because cooperation between Canadian and the PRC vocational education institutions began as early as 1984 (Brennan, 2014). Further, Canadian vocational education institutions have helped establish a number of

successful bilateral programs in the PRC. The *Canada-China College Linkage Program* (1989–1996), which paired 29 PRC education institutions with 32 Canadian partners, and the *Project to Improve Teacher Training in Rural Areas* (2003–2008), which significantly improved teaching quality in Sichuan Province primary schools, provide two examples of such cooperation.

Further, the PRC and Canada share many similarities. The geographic area of both countries is extensive, and both are home to a number of cultures and ethnic groups, including minorities. Similarly, Canada's vocational education institutions operate in a wide range of contexts. Some are located in large, industrialized cities, while others are in remote, rural areas. Likewise, some are located in wealthier neighborhoods, while others are in areas home to a significant number of disadvantaged residents. Moreover, some Canadian vocational education institutions are unilingual and some are bilingual. Finally, the close relationship between industry and Canadian vocational education institutions provided a model for their PRC counterpart institutions to use as a foundation in upgrading their relationships with industry and thence employers.

Lessons Learned by VELT Participants from Their Canadian Experience

College governance, leadership, and management:

- Decentralization and value-based leadership make Canadian colleges efficient.
- Democratic governance enables institutional efficiency.
- Canadian colleges see themselves as providing a service to the community in which they are located.
- Strategic planning, systematic implementation of strategies, and operational efficiency are central to the success of Canadian colleges.
- Decision making by Canadian colleges is based on analysis of data.
- Canadian colleges use results-based management.
- The performance indicators used to assess the performance of Canadian colleges are made available to the public.

- Continuous learning by Canadian college management allows management to remain up-to-date.
- Superior leadership creates an inspiring culture in Canadian colleges.
- Sustainable development initiatives create environmentally responsible citizens.
- Canadian colleges are as diverse as the country they represent.

Curriculum and teaching:

- Canadian college curricula respond to industry requirements, and employers participate in curriculum development.
- Instructors must have industry experience, as they assist in curriculum development.
- Essential skills and the capacity for critical, analytical thought make for superior graduates.
- Canadian college graduates tend to be world citizens that are ready for the information age.
- Lifelong learning is encouraged at Canadian colleges;
- Globalized graduates require a globalized faculty, and programs that reflect global standards.
- Canadian colleges give significant weight to developing social skills and creativity
- Learning at Canadian colleges is supported by a vast array of student services.
- Canadian colleges use empowerment rather than punishment to encourage learning.
- An appropriate balance between theory and practice is necessary for a superior education.
- Applied research encourages student development.
- Teachers in both Canada and the PRC are passionate about teaching.
- Canadian colleges place significant emphasis on improving the capability of teachers.

Student-centered approaches:

- Student success is at the heart of the mission of Canadian colleges.
- Canadian colleges use a personalized approach to student development.
- The overall goal of Canadian colleges is to equip graduates with advanced skills necessary for success in the labor market.
- Canadian colleges have a one-stop-shop approach to the provision of student services, which improves accessibility.
- Numerous transfer options are available to Canadian college students.
- Many curricula and study options are available to Canadian students (e.g., full-time, part-time; daytime, evening; numerous programs leading to degrees, diplomas, and certificates).
- Investment in social media by Canadian colleges is significant because it supports learning and socialization.

Source: Reports of VELT participants on their experiences in Canada (2011-2014)

Implications of the Lessons from Advanced Skills Development in Canada for Developing Asia

This section summarizes the implications of the lessons learned from advanced skills development in the Canadian vocational education system for Asian developing countries in Asia in general.

Overall Context

The growth path of many Asian developing countries aspiring to go beyond middle income levels requires that the manufacturing base move from a low-technology, low-skills model to a higher-technology, higher-skills model. At present, many of these countries have a significant supply of low-skill labor, but a significant shortage of high-skilled labor. The key to transitioning to greater value-added processing in the manufacturing sector is shifting the composition of the national skillset toward one in which higher-skills predominate. This in turn requires upgrading skills development systems.

However, many emerging countries of this type have not yet completed the demographic transition to a relatively low rate of population growth. As a result, the transition in the skills development systems referred to above must take place against a backdrop of increasing unemployment and skewed income distribution (Ji-ping, 2012). Put differently, Asia's extraordinary pace of economic growth has been accompanied by worsening income inequality and thence social inequality (Jagannathan and Geronimo, 2013). This in turn has excluded a relatively large segment of the national population from the benefits of economic growth. This exclusion has been intensified by skills mismatches and vice versa, thus causing the unemployment rate to remain relatively high. The key to reversing the above scenario—and thence to reducing poverty and inequality, promoting growth, and achieving middle-income status—is skills development (UNESCO, 2012; World Bank, 1994). Skills development likewise diminishes social exclusion and its negative impact on human capital development (World Bank, 2013).

General Implications of the Canadian Community College Experience for Skills Development in Asian Developing Countries

In many ways, the economic backdrop against which Canadian community colleges evolved is similar to that currently prevailing in many Asian developing countries. That is, Canadian community colleges appeared at a time in which the country's economy was shifting from one based on agriculture to one based on manufacturing. At that time, there was significant oversupply of low-level skills in Canada, as well as a significant shortage of the higher-level skills, required for rapid industrialization. Further, the higher-level skills required for rapid industrialization differed considerably from the skills then provided by universities. Canadian community colleges filled this gap by changing the skills development landscape. This was accomplished by forming close relationships with the communities they served. These relationships in turn led to the accessibility and inclusiveness that remain hallmarks of Canadian community colleges.

A primary lesson to be learned from the experience of Canadian community colleges is thus that a system rooted in the values and principles of both the country and the local community is a powerful factor in generating sustainable growth for vocational education and skills development.

Specific Implications of the Canadian Community College Experience for Skills Development in Asian Developing Countries

A number of lessons from the Canadian community college experience may be helpful to Asian developing countries in addressing the challenge inherent in upgrading skills development, summarized here:

- The open-door policy (i.e., providing access to higher vocational education for all) of Canadian community colleges was probably the most important factor in their success, and in allowing the country to resolve its skills shortages. Given Asia's relatively large population with basic skills, an open-door policy on the part of vocational institutions would help boost the supply of labor market entrants with higher-level skills.

- Free access to college education does not guarantee access for disadvantaged students. The principle of accessibility to education transcends simply enrolling in an educational institution or affording the financial liability it implies. Accessibility means creating every possible condition for students to succeed in their studies and benefit from employment objectives.
- Open-door college policies do not mean compromising, lower-level education. Community colleges have multiple means to ensure high-quality education that meets the highest standards of industry.
- The success of the *Mulheres Mil* project proves that populations with low-level skills that live in disadvantaged communities or remote areas are able to improve their employability when access to education and training and appropriate support is provided.
- The primary mission of community colleges is to serve the economic and social needs of the communities in which they are located. Close relationships with community associations, employers, and local industry ensure that the community college remains relevant to the community.
- While vocational education and training policies must align with national- economic objectives, autonomy allows educational institutions to respond flexibly to the skill requirements of industry. Decentralization of governance and administrative structures is a precondition to such autonomy.
- The shift from a traditional top-down, rules- and compliance-based management model to a values- and principles-based system can provide vocational education institutions with the flexibility they need to respond to the changing skill requirements of industry.
- For decentralization to result in substantial benefits referred to above, it must be accompanied by modern accountability mechanisms. In turn, a precondition to adopting modern accountability mechanisms is modern data collection and analysis systems.
- Involving employers in curriculum development and program formulation ensures that the education provided by vocational education institutions can nimbly respond to the changing skill requirements of industry.

- High-level skills development is a complex enterprise. In particular, it requires a well-planned curriculum that emphasizes essential skills as well as technical and job-specific skills. This ensures that education lays an appropriate foundation for satisfying future skill requirements, which in turn requires providing students with life-long learning skills.
- The vision implied by the above may seem challenging to countries that still view universities as the primary provider of essential skills, and vocational education institutions as the primary provider of technical and job-specific skills. However, technical and job-specific skills require constant updating, which is heavily dependent on essential skills. Teaching essential skills is thus imperative for any successful skills development program.
- In addition to introducing an updated curriculum, upgrading skills development systems requires using modern teaching and learning methods. One of the best ways to ensure that teaching and learning methods are consistent with the skills requirements of industry is to involve representatives of industry in the revision of existing curricula. Learning from other countries' experiences and sound experimentation are also efficient vehicles for modernizing both curricula and teaching methods.
- Teaching critical thinking, entrepreneurial skills, and creativity prepares students for functioning in a workforce that is competitive globally.
- Ensuring the success of all students represents one of the most important challenges of community colleges. Providing support to students of different background that ensures their success can be challenging. However, such support—which takes many forms—has proven to be essential to student retention and long-term success.
- In many countries vocational education tends to be a dead-end, in that choosing a vocational track is often associated with exclusion from further education, regardless of academic achievements or the level of motivation of the student. Such a view projects an unfavorable image of students who pursue vocational education. In addition, this reflects negatively on the prestige of vocational education, and by extension, its outcomes.
- In contrast to the above, in the Canadian system, vocational education is a central component of postsecondary education. Offering a wide range of diplomas, certificates, and degrees helps

increase the attractiveness of vocational education, and thence the level of prestige it enjoys. Of particular importance in this regard may be joint college-university programs and degrees.

- Changing the nomenclature used to refer to vocational education may also help increase the level of prestige it enjoys. Examples of such modern terminology that reflect the changing role of vocational education include advanced skills and applied learning.
- The above notwithstanding, increasing the prestige of postsecondary vocational education requires more than a change in terminology. The quality of education and training, graduate satisfaction with training and the jobs it enables, career opportunities and placement, employer appreciation of staff, suitable working conditions, appropriate wages and other monetary incentives, and even employee engagement play heavily in transforming vocational education and improving its prestige.
- In addition to enriching the overall student learning experience and the contribution of vocational education institutions to the local economy, applied research helps raise the level of prestige of vocational education.
- While the success of the Canadian approach to vocational education is well documented, its greatest contribution to the upgrading of vocational education in developing countries is the support it provides to each country building its own model of skills development, rather than simply importing the Canadian approach wholesale. Importing off-the-rack models and solutions to vocational education always results in suboptimal outcomes as compared with structuring vocational education models to meet domestic requirements.
- Experimentation should not only be allowed, but actively encouraged. Pilot projects are often considered to be the most efficient means of encouraging experimentation. For example, one of the primary factors in the success of the *Mulheres Mil* project was implementation of its pilot phase, which allowed adjustments critical to the project's overall success to be made early on, and at relatively low cost.

Skills mismatches and growing social inequality are causing many developing countries to review their skills development models. In the Canadian experience, community colleges have played an essential role

in increasing social mobility, in that they make higher education available to a large part of the population, thereby contributing to narrowing of educational and social inequality. The primary factors contributing to the success of Canadian community colleges include (i) close partnerships with industry, employers, and the community in which they are located; (ii) open access; (iii) a focus on applied learning and research; (iv) development of essential and entrepreneurial skills in addition to technological and job-specific skills; and (v) provision of support to students through student services centers.

Conclusion

The success of the Canadian community college system has proven that efficient skills development models must be rooted in the context of each country and region, as well as in the values and culture of the nation as a whole. Only in this way can the international development fallacy of importing skills development systems wholesale be avoided. Ultimately, skills development models imported wholesale from other countries inevitably fail to provide a sufficient foundation for economic and social advance. The Canadian approach to international assistance programs holds that in order to result in a sustained, positive impact, such programs must be based on facilitation of knowledge transfer and adaptation instead of wholesale importation.

The above notwithstanding, further research, including comparative studies, on the role of public vocational education institutions in advanced skills development will allow a better understanding of how postsecondary professional education may facilitate increases in output and income, and hence, acceleration of the pace of economic advance.

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APPENDIX 1

Profiles of Selected Canadian Community Colleges

Saskatchewan Polytechnic

- Serves over 26,000 students through applied learning opportunities at 4 campuses and through extensive distance education opportunities;
- 18% of all students are of aboriginal ancestry;
- 177 credit programs serve the economic and public-service sector: 102 certificate programs, 52 diploma, 2 degree programs, and 21 apprenticeship programs;
- Applied research activities draw on faculty expertise to support innovation by employers, and provide students the opportunity to develop critical thinking skills;
- Co-operative education;
- Continuing education;
- Corporate training;
- Training and consulting services;
- 94% graduates find employment;
- 95% of graduates are satisfied or very satisfied with program quality;
- 98% of employers would hire a Saskatchewan graduate again;
- \$232 million operating budget (67% from provincial government funding; 12% from tuition and fees);
- Staff: 1,683 full-time equivalent

- Full range of student services:
 - ♦ academic (bookstores, library, PLAR, online writing lab, testing),
 - ♦ support (counseling, disability, health, online learning, employment),
 - ♦ resources and references (child care, food services, housing, lockers, scholarships and awards)
 - ♦ student life: recreation and athletics, student association
 - ♦ alumni services.

Source: Saskatchewan Polytechnic

<http://saskpolytech.ca/about/about-us/quick-facts.aspx>

Humber College Institute of Technology and Advanced Learning (Ontario)

- Founded in 1967 with the mandate to provide accessible, quality career education and training to enhance the social and economic development of Ontario and to meet local, regional and global marketplace demand;
- More than 27,000 full-time and 56,000 continuing education students;
- 170 full-time and 200 continuing education programs include 4-year baccalaureate degrees, 2 and 3-year diplomas, and one and two-year certificates; also offers apprenticeship training to more than 2,000 students in the fields of applied technology, skilled trades and culinary arts;
- 85% of Humber graduates employed within six months of completing their studies;
- 94% of employers satisfied with the quality of the graduates;
- The Aboriginal Resource Centre works within Student Success and Engagement and in partnership with regional Aboriginal communities to ensure Aboriginal students are supported and connected to their learning environment, academically, culturally and socially;
- The Green Teams are an effort to involve members of the campus community, at all levels, to help realize the College's green and sustainable vision;

- Humber's Institutional Analysis/Research team supports institutional strategic initiatives and decision-making with timely and relevant data, analysis, and information;
- Over 30 years of experience in the design and delivery of international development projects around the world: building capacity of partner institutions in a range of sectors, including entrepreneurship, small enterprise development, microfinance, public management, applied technology, and vocational education;
 - ♦ International Development Institute:
 - Bachelor of International Development (4-year degree program);
 - International Development Postgraduate Certificate (1-year postgraduate certificate)

Source: Humber College
<http://www.humber.ca>

British Columbia Institute of Technology (BCIT)

- Founded in 1964 with 647 students and 17 programs;
- In 2014, 48,000 students a year (nearly 18,000 full-time and over 29,000 part-time); 350 programs, 6 schools, 5 campuses;
- Programs with a variety of levels of certification: certificates, diplomas, and advanced studies, including degrees;
- Provides the majority of apprenticeship training in the province of British Columbia;
- Applied Sciences Programs are offered at the following BCIT schools: Construction and the Environment, Energy, Computing and Academic Studies, Health Sciences, Transportation; paid work experience in the field of studies)
- Apprenticeship training available (80% of which is paid on-the-job work experience, and 20% is technical training at BCIT in one of 30 trades);
- Median age of full-time students: 22 years; and of part-time students: 31 years.

- Graduate employment rates (2014): 79% for certificate and diploma holders, 95% for degree and 93% for apprentices;
- On average, 95% of the graduates rated the quality of instruction as very good, good, or adequate (2014);
- More than 1,700 full-time employees and more than 500 part-time employees;
- Approximately \$280 million operating budget (48% from grants; 34% from tuition and fees);
- Full range of student services.

Source: British Columbia Institute of Technology (BCIT)
<http://www.bcit.ca>

APPENDIX 2

Community Colleges in Support of Youth Employment Strategies

Canadian community colleges have a significant potential to contribute to the development of advanced skills in a region or country. To fully exploit that potential they should be involved in the development and execution of national or regional skills development strategies and programs.

Canadian community colleges contribute to federal and provincial employment initiatives and are particularly active in delivering youth employment programs. The *Youth Employment Strategy* of the Government of Canada aims to help young people, particularly those facing barriers to employment, get the information and gain the skills, work experience, and abilities they need to make a successful transition into the labor market.¹ Community colleges not only provide training programs, they also play an essential role in providing local job information and connecting youthful job seekers with employers. For example, Okanagan College, British Columbia received government funding to host a job fair that provided youth with information about the local job market, education options, and help in connecting them with employers. Douglas College, British Columbia plays a leading role in the Career Start program, and in partnership with Fanshawe College in London, Ontario and College of the North Atlantic in St. John's, Newfoundland, helps postsecondary graduates gain the on-the-job experience required for moving into their

¹ <http://www.servicecanada.gc.ca/eng/epb/yi/yep/newprog/yesprograms.shtml>

desired careers.² Collège Éducentre in Vancouver offers a 22-week program (Youth At Work) for young people aged 15 to 30 who face major barriers to employment. The program includes the acquisition of basic skills, as well as skills that improve access to the job market.³

Part of the Ontario government's Youth Jobs Strategy, the *Youth Employment Fund* helps 30,000 young people across the province get work experience, start a business, or build job skills. The program offers youth an opportunity to learn work skills while earning an income. Many colleges and institutes participate by assessing skills, providing short-term training in general skills such as communication, health and safety, administration, computer and technological skills, and assisting with job placement.

Community colleges are also active in geographic areas with significant aboriginal populations and skills shortages. Confederation College in Northern Ontario offers a specific 2-year program (the *First Nations Natural Resources Youth Employment Program*)⁴ that creates awareness, generates interest, and provides pathways for First Nations youth aged 16 to 18 in pursuing education, training, and employment in natural resource science-based subsectors such as forestry and mining. To promote science and technology as an education and career choice, a Natural Resources Science Camp week is held at Confederation College, with tours of various campuses being organized on a regular basis.

² <https://www.douglascollege.ca/about-douglas/news-and-media/news/2013/November/douglas-college-receives-national-employment-project>

³ <http://www.educacentre.com/en/employment-services/youth-at-work/>

⁴ <http://www.confederationc.on.ca/naturalresourcescentre/fnnryep>

APPENDIX 3

Summary of Responses to Interview Questions

QUESTION	RESPONSES
Key features of Canadian community colleges and the Canadian college model. How do these form a relevant model for advanced skills education in developing economies?	• Canadian values (diversity, decentralization, community-based approaches, respect, inclusiveness, equality of opportunity for all) form a unique Canadian approach to skills development • Decentralization provides the flexibility required for success in fulfilling the mandate of Canadian community colleges; • Provincial government policies define the regional aspects of the Canadian community college education • Some approaches used in Canada have been adapted from those used in the United States, but there are also significant differences between the two systems • Public funding is important to the success of Canadian community colleges • Structured relationships between colleges and industry and employers is a significant advantage of Canadian community colleges and the students that attend them • Program advisory committees are essential to the success of community colleges and their graduates • Collective governance is a key feature of the success of Canadian community colleges • College leadership requires specific competencies, many of which cannot be acquired through formal education • Employers need colleges to teach essential skills, since these facilitate successful on-the-job training • Entrepreneurial skills are key to global competitiveness, as they entail the ability to innovate • Restricting access to college education risks slower growth in productivity and income growth in future decades

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Table continued

QUESTION	RESPONSES
	• Government facilitation of college education is an important aspect of its national skills development strategy • Student-centered approaches to learning and student support service centers are vital to the success of community college students, particularly those of aboriginal ancestry or those who are new immigrants • Opening transferability pathways to a university education reduces the cost of university education and encourages education to be continued beyond the community college level • Demonstrating the value added provided by community colleges to both the local community and the national economy is the key to sustainable funding of community colleges
Key lessons learned from partnership initiatives in Latin America, and in particular from the <i>Mulheres Mil</i> project in Brazil	• Inclusiveness and educational opportunity for all maximize the benefits of skills development strategies • Targeting women as learners targets their entire families, as well as the communities in which they live • Only our development partners can know which strategies would be the most successful in their own countries • Establishing human relationships is essential to the success of international development programs • An immediate priority of any international development program is addressing the communication challenges they present (through language training or training in cultural awareness) • The determination of beneficiaries to better their own situation as well as that of their children should never be underestimated • The same is true of the power of emotions and their transformational potential • Establishing accountability systems at the outset of a development project is key to project success • Learning from others helps one rediscover his or her own strengths • Scaling-up a project runs the risk of a focus on quantity rather than quality • Prior Learning Assessment and Recognition was central to the success of the <i>Mulheres Mil</i> project

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Table continued

QUESTION	RESPONSES
	• The basic tenets of the <i>Mulheres Mil</i> project may have to be adapted to different countries or contexts. Brazilians are confident and creative learners unafraid to adapt the practices they have learned to their own context • International competencies are not necessarily learned abroad; working on international projects within one's home country provides an opportunity to develop such skills.
Lessons learned from PRC's Vocational Education and Leadership Training (VELT) Program in Canada	Canadian leaders: • The similarity of issues facing community college leaders in PRC and Canada was surprising. • Everything that occurred during VELT participant visits was a learning experience • PRC college leaders appreciate the human side of the learning process; this appreciation was magnified by inviting them to our homes and sharing everything we know with them • VELT participant visits resulted in mutual learning and benefits PRC leaders: • The collective governance of the Canadian colleges provided important lessons for us in that it uncovered a number of opportunities for improving leadership of PRC vocational education institutions • Building competencies is central to the education of Canadian community college leaders • Community college leaders in Canada stress flexibility, creativity, and innovation • The student-centred philosophy is at the heart of the Canadian community college experience; viewing students as clients is a perspective that we need to explore; • Centralizing the provision of student services in student service centers is an efficient way to deliver student services • Canadian students are allowed to ask questions, and to engage in dialogue with their professors; learning in Canadian community colleges takes place through empowerment rather than through punishment

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QUESTION	RESPONSES
	• The management techniques used by Canadian community college leaders present a number of opportunities to us; this is particularly true of strategic planning tools and key performance indicators • Canadian community colleges attach significant importance to the development of social and soft skills, such as creativity • Learning is at the core of the community college experience: faculty consultations are available at no cost; the college library hosts peer tutoring rooms; putting courses and information online allows it to be accessed from everywhere; student surveys improve the learning techniques employed by community colleges • balance between theory and practice is emphasized at Canadian community colleges • Canadian community colleges view applied research as part of the college experience and student development • Comparing oneself to others is an efficient way to learn about oneself.

The Role of Community Colleges in Skills Development *Lessons From the Canadian Experience for Developing Asia*

This book presents key features, attributes and defining characteristics of Canadian Community Colleges and Institutes of Technology and the lessons they offer to developing countries in Asia. Internationalization initiatives of Community Colleges suggest that partnerships in skills and human capital development are possible in countries at various stages of development and are in fact the hallmark of successful global economies. The publication draws lessons from the Canadian approaches while suggesting that no model can simply be transplanted to Asia and the Pacific. Rather the Canadian approaches should inspire countries to create their own new models and practices.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to approximately two-thirds of the world's poor: 1.6 billion people who live on less than \$2 a day, with 733 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.



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