Skills Strategy Options for the OECS

A Report to the OECS and the World Bank

DRAFT FOR DISCUSSION

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ACRONYMS

AVC	Area Vocational Center
CA	Carder Academy
CSEC	Caribbean Secondary Education Certificate
CCSLC	Caribbean Certificate of Secondary Level Competence
CTE	Career and Technical Education
CVQ	Caribbean Vocational Qualifications
CXC	Caribbean Examination Council
EMIS	Education Management Information System
KRIVET	Korea Research Institute for Vocational and Technical Education and Training
LMI	Labor Market Information
NAEP	National Assessment of Educational Progress
NTA	National Training Agency
OECD	Organisation for European Cooperation and Development
OECS	Organization of Eastern Caribbean States
PISA	Programme for International Student Achievement
TVET	Technical and Vocational Education

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Executive Summary

The Caribbean states of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines have achieved middle income status since gaining independence from the UK in 1974-1983. Anguilla, the British Virgin Islands and Montserrat, self-governing states that have the status of British Overseas Territories have seen similar economic progress. The first six are Member States of the Organization of Eastern Caribbean States (OECS), a sub-regional organization for cooperation and development; the latter three are Associate Members. With the Revised Treaty of Basseterre expected to be ratified by Member States in 2011, the OECS is to create a new Economic Union that will have a stronger legislative role in sub-regional collaboration.

Fully integrated into the global economy, the OECS States rely on economic growth in tourism and financial services to create employment, raise incomes and continue to reduce poverty. Competitiveness matters to these small countries, yet despite significant investment in education the productivity of the workforce has not been growing over the past decade and economic growth has slowed.

The principal barrier to competitiveness and growth is that the skills of the workforces have not kept pace with rapid changes in technology and markets even as the structure of the economies changed. Both agriculture and manufacturing have declined sharply as share of the economy; most jobs are in now in services and growth in that sector has fallen as well. Open unemployment hovers around 20 percent, and can be twice as high among youth, leaving work in the unregulated informal sector as a last recourse. Unfortunately, the international drug trade and other forms of crime are flourishing under these circumstances, raising a further threat to competitiveness.

Employers rate lack of appropriate skills in the market as the major constraint on growth and expansion, in contrast to many other lower middle income countries where lack of access to finance and government regulation are seen as higher barriers. More than half of employers provide training, but find that inadequate skills of new employees make it quite costly.

OECS education systems now enroll nearly all youth in secondary school, about a third of them in vocational education programs. Automatic promotion into secondary education is now largely in place. Learning achievement levels as measured by the Caribbean Examination Council tests are average for the Region. Most States have community colleges and there are branch campuses of the University of the West Indies, but less than fifteen percent of secondary school graduates go on to post-secondary education. Of those that do many migrate in search of better economic opportunities in the USA and Canada and elsewhere in the Caribbean.

Recognizing the need to adapt education systems to the skill demands of the global economy, the OECS States have sought strategic direction from donors and on their own over the past five years. Much of the advice has been consistent in setting improvement in the quality of secondary education as the highest priority; some of it has focused on improving technical and vocational education systems. With donor support, initiatives to improve the quality of secondary education and vocational training for out-of-school have been put in place in some of the States. .

In anticipation of the strengthened sub-regional collaborations promised by the pending Economic Union, the OECS Secretariat is preparing a new education strategy with the broad goals of improving economic competitiveness, expanding employment and reducing poverty. The present Strategy Paper is one of several being prepared to support the OECS strategy.

Other relevant topics are being addressed in separate papers for the OECS Education Strategy, including curricula and education finance.

The focus here is on secondary education, the last stop in formal education for the largest share of new employees. The strategies offered are benchmarked on the changes in skills demand in OECD countries and the changes that such countries have made to adapt their education and training systems to these skill demand changes.

In the USA demand for higher order skills in analysis and interpersonal communication (called "non-routine skills in the research) has risen by factors of 4 and 7 respectively, while demand for routine cognitive and manual skills, and for non routine manual skills have fallen considerably. Jobs that require data analysis, creative thinking, interpretation of information for others, and guiding and motivating subordinates have grown substantially, while those that require accurate performance of repetitive tasks and controlling machines and processes have contracted. These changes have been driven by the digitization of work, with computer programs doing the repetitive work and the internet lowering communication costs and facilitating the outsourcing of low skill work to countries with low labor costs. This pattern appears across the OECD, and as research in Brazil shows is spreading with economic integration.

Along with other OECD countries, Korea has steadily adapted its education and training system to these economic changes over the past five decades. Early equal weight was given to vocational and academic secondary education to build for expansion of universities on the one hand and move relatively uneducated youth from rural areas to urban manufacturing jobs. The Korean economy continued to change through capital intensive manufacturing to technology intensive businesses, and then on towards a knowledge economy and industrial convergence. Along the way vocational enrollments were capped and began to fall while academic secondary education expanded to drive growth in post-secondary and university education. By 2007 ninety percent of secondary graduates, general and vocational, enrolled in post-secondary or tertiary education before entering employment. Korean students have been scoring in the top five countries on the international PISA examinations.

Other OECD countries adapted differently. Scandinavian countries consolidated occupation-based vocational education into a dozen career curricula offered after ten years of general education, Germany consolidated the dual system while enrollment in academic secondary education increased. In the USA and UK career academies were formed as schools-within-schools that prepared students for careers in health care, tourism and hospitality, and technical subjects such as robotics in close collaboration with employers. Higher education enrollments were expanded, doubling in Australia and Austria and increasing by more than 40 percent in Germany, Mexico and the USA.

The key to these changes was development of effective schools. This required increasing school autonomy accompanied by strong measures of performance, giving priority to teacher pay over small classes, and providing students with similar educational opportunities, regardless of socio-economic background.

Currently the education systems of the OECS States remain locked in the kind of centralized, top-down system that tracked children early to vocational education tracks based on test scores: not surprisingly, these students tended to come from lower income families.

With access established, it is now time for OECS States to change their education systems to enable youth to gain the skills needed for success in the global economy, for contribution to economic growth and for competitiveness. Strategies for change will need to be accompanied by capacity building for the decentralized management that facilitates linkages between school and work while ensuring that all students master the skills of the new global economy. The recommended strategies are: a) to enable primary graduates to choose their secondary course of study, rather than track them into vocational courses; b) improve the quality of teaching to focus on non-routine critical thinking, problem solving and communication skills across all areas of the curriculum; c) experiment with models of employer/school cooperation that give all students work experience during secondary school; d) consolidate vocational education into separate institutions, reducing enrollments while working with employers to develop the cognitive and behavioral skills in demand.

To carry out such reforms, OECS education systems will need to build capacity to a) establish effective collaboration with employers, b) improve governance for flexibility and accountability, and c) improve incentives by moving from routine budgets toward targeted performance-based public financing.

Skills Strategy Options for the OECS[1]

A Report to the OECS and the World Bank

John Middleton, Consultant

OVERVIEW

Despite small populations and economies, the Windward Island Caribbean states of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines have achieved middle income status since gaining independence from the UK in 1974-1983. Anguilla, the British Virgin Islands and Montserrat, self-governing states that have the status of British Overseas Territories have seen similar economic progress. The first six are Member States of the Organization of Eastern Caribbean States (OECS), a sub-regional organization for cooperation and development; the latter three are Associate Members.

The Economic Union is expected to have a stronger legislative role in sub-regional collaboration: this includes the responsibility for developing an education strategy that will address issues of improving competitiveness. This Strategy Paper (SP) is a contribution (among others) to the emerging OECS education strategy.

Because of difficulties with access to data, this study deals only with the six Member States. It is hoped that the findings and recommendations will be of service to the Associate Member States as well.

How is this Skills Strategy Paper Organized?

By taking a skills development approach the Strategy Paper (SP) looks at international experience in adapting education systems to changes in skills demand. The focus is on the strategies that have been developed and on the institutional capacities needed to implement strategies. Improving skills, productivity and earnings are the guiding goals. To the extent that the poor acquire better skills poverty should fall.

Other relevant topics are being addressed in separate papers for the OECS Education Strategy, including curricula and education finance.

As the largest source of skills for employment, comprehensive secondary schools are the focus, although post-secondary education is considered insofar as it creates incentives for change on the other. Vocational education and training at the secondary education are important topics.[2]

The first section draws on current international economic research to show how the skills in demand from employers have changed to meet the challenges of globalization and competition. In sum, the changes are profound and rapid and transcend the occupational structures that served as the basis for the design of the TVET systems three to four decades years ago.

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[1] The views and recommendations of the paper are those of the author and do not necessarily reflect those of the OECS or the World Bank.

[2] Skills training for unemployed youth outside of the formal school system is in early stages in the OECS, and is not treated in this study.

The second section uses international experience to show how different countries are adapting their education systems to meet changing skills demand. Strategies vary, but in all cases enrollments in traditional TVET decline relative to academic secondary education as universal secondary education is achieved, post-secondary and tertiary education expands, and the role of employers in continuing education and training is explicitly recognized and encouraged.

The OCES context for economic growth, employment and skills demand is discussed in Section III. The assets of OECS education systems, and the challenges to change, are the subjects of the fourth section. Much has been achieved and there are many assets, but institutional capacity to plan, manage and finance change at the national and school level needs to be strengthened: this is likely to require changes in governance, accountability and funding procedures.

The fifth and final section offers -- for consideration -- strategic options for educational change in the OECS and identifies the capacity building strategies that are needed to implement changes. These options are intended not as ready-made solutions, but as a partial framework for consultation and debate. Too simply put, general secondary education would be strengthened to provide the cognitive and behavioral skills in demand by employers, and linked to work through several curricular and institutional options; TVET would be strongly linked with employers, consolidated into stand-alone technical vocational institutions, and strengthened for quality. Current skills training initiatives, such as the Caribbean Vocational Qualifications (CVQ), training for unemployed youth and adaptation of the Caribbean Examinations Council (CXC) examinations to new skills would be further integrated into broader sub-regional strategies. Although not the main focus of this SP, it also makes sense over time to remove bottlenecks between secondary and post-secondary education.

The study draws on previous work for description and diagnosis of the current economic and employment situation in the OECS, and for description of current education systems. The sections on the skills required in globalized economies, and on the strategies used to adapt to these changes in other countries, are new. The recommendations for strategy choice and implementation owe much to previous work, but are those of the present author.

I. GLOBALIZATION AND CHANGING SKILL DEMAND

The OECS is part of radical change in the global economy. Over the past thirty years the nature of production changed radically, quickly and globally. The first driver was the triumph of free-market capitalism, marked by the reunification of Germany in 1990 and the collapse of the Soviet Union at the end of 1991. Trade barriers fell globally, accelerated by the creation of the World Trade Organization (WTO). The Euro became an international currency in 1999. China, preparing from the late 1970s, was already attracting substantial direct foreign investment in manufacturing joint ventures and expanding foreign trade: in 1991 China had a trade surplus of $13 billion.

Technological change accelerated the process. The Apple personal computer was first offered on the market in 1977; the IBM personal computer (PC) came in 1981. By 1985 PCs were replacing mainframes for business use. And then came the Internet. In 2010 there are more than 1 billion PCs in use world-wide, the global computer market is growing by 12 percent annually, and the market in emerging countries is growing twice as fast.

The falling costs and desk-to-desk availability of computers facilitated the adoption of the "lean manufacturing" processes pioneered in Japan. Enterprises began to outsource manufacturing tasks to smaller specialized firms. Costs and employment fell with the size of inventories. Automated production expanded rapidly, with computer-controlled machinery replacing skilled labor. Offices were also digitized: bookkeeping and accounting employment shrank, and the occupation of secretary virtually disappeared.

With the falling communication costs brought by the internet, outsourcing became off-shoring, first with large parts of manufacturing being shifted from the OECD to countries with low wage costs and later with knowledge intensive work such as product design and software development.

These massive advances in technology fundamentally changed the nature of production in all areas of economies, and in so doing radically altered the structure of occupations and skills, and thus the demands on education.

How has demand for skills changed?

With digitization of business processes and production technology the share of employment demand for craft and trade skills began to fall. Technological change made theoretical and new basic skills increasingly important in trades such as electricity and plumbing for the design and diagnosis elements of jobs. In OECD countries such occupations increasingly require post-secondary theoretical training. Lower-skill construction jobs are still learned through formal and informal apprenticeship in most countries, with supervisory and design jobs generally requiring extensive experience and often some certification.

Early in the globalization period, employers recognized that in the technology-rich work environment the skills needed were cognitive and behavioral. Important to changing perceptions was research on the new skills in demand from employers (Box 1). The important finding was that the widespread use of computers had increased demand for basic skills that students can learn in the course of "academic" or "general" secondary education. Also useful for success in tertiary education, these skills can be learned

through better teaching of the academic curriculum at a much lower cost than that that of narrow vocational curricula with their high cost facilities and the small classes required for training in workshops.

Box 1: The New Basic Skills

Research on the relationships among employment, skills and secondary education in the United States is perhaps most well-developed among OECD countries.

In a seminal research publication, Murnane and Levy came to significant conclusions about how education can best respond to changes in work. They drew on analysis of the hiring criteria of employers to determine that that secondary students need to acquire the "new basic skills":

- read at the ninth grade level or higher
- do math at the ninth grade level
- solve semi-structured problems where hypotheses must be tested
- work in groups with people of different backgrounds
- communicate effectively both orally and in writing
- use computers for simple tasks such as word processing.

These skills prepare students for greater success in employment and in higher education, and can and should be taught in courses across the academic secondary curriculum.

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Murnane and Levy (1996).

As digitization of production processes accelerated demand for skills continued to change. A new wave of research moved to deeper analysis of the skills that employees actually use in different occupations.[3] Signals that skill demand was changing even more rapidly motivated the analysis: falling wages for low skill workers; growth in employment in both low and high skill occupations relative to middle level skill occupations; rapid diffusion of technologies that substitute capital for labor in moderately skilled occupations; and expanded off-shoring enabled by technology that facilitates the substitution of foreign for domestic labor in specific tasks.[4]

The categories of skills that are the basis of this most recent analysis are determined on two dimensions. The first is non-routine/routine. Non-routine skills are required to use knowledge to deal with uncertainty and rapidly changing information. Routine skills involve applying rules and procedures exactly in a repetitive manner. The second dimension distinguishes between cognitive, interpersonal and manual skills.

As can be seen in Table 1, these categories are not those used in the pre- globalization era to define the skills needed for work along with the curricula of pre-employment vocational education aimed at

[3] Levy and Murnane (2004); OECD (2009)

[4] Source: Acemoglu and Autor (2010). The author thanks Javier Luque and Cristian Aedo of the World Bank for demonstrating the use of these categories.

preparing young people for entry-level jobs. The Table shows five skill categories together with sub-skills and examples of occupations that demand high levels of the skills in a given category. The data are based on large scale surveys of employees regarding the skills that they use at work.

Table 1: Categories and Components of Skills

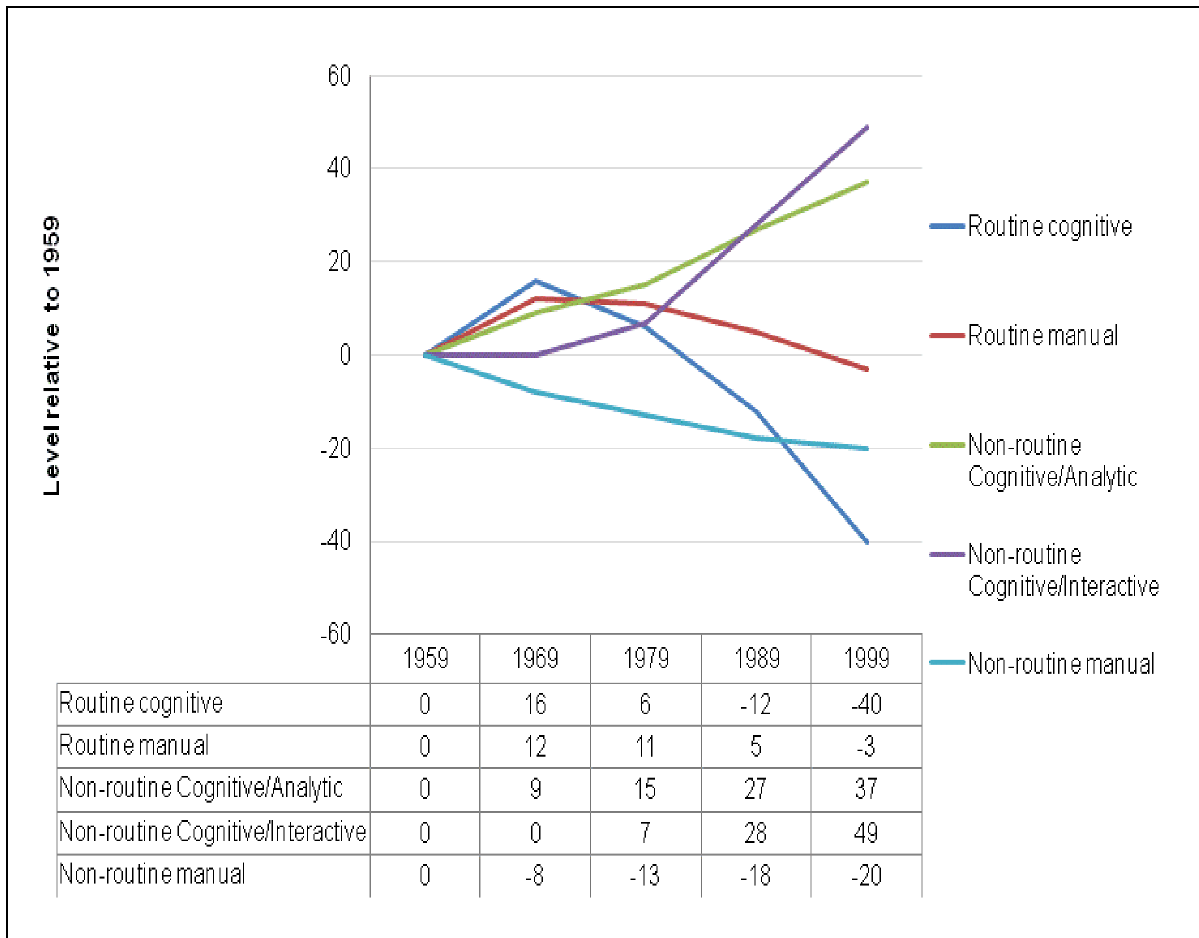
Skills	Non-routine cognitive: Analytical	Non-routine cognitive: Interpersonal	Routine cognitive	Routine manual	Non-routine manual physical
Sub-skills	Analyzing data/information Thinking creatively Interpreting information for others	Establishing and maintaining personal relationships Guiding, directing and motivating subordinates Coaching/developing others	Importance of repeating the same tasks Importance of being exact or accurate Structured work	Pace determined by speed of equipment Controlling machines and processes Spend time making repetitive motions	Operating vehicles, mechanized devices, or equipment Spend time using hands to handle, control or feel objects, tools or controls Manual dexterity Spatial orientation
Examples of occupations demanding high levels of these skills	Lawyers, College, university and higher education faculty Teaching professionals, Public and private sector managers medical doctors, Training and development managers		Telephone operators, Bus drivers, Bookkeeping, accounting and auditing clerks, meter readers- utilities, cashiers.	Industrial truck operator, Cutting and Slicing Machine Setters, Operators and Tenders, Shoe Machine Operators and Tenders, Food Cooking Machine Operators and Tenders, Construction Carpenters.	

Source: Acemoglu and Autor (2010)

This specification of skills takes forward the earlier work on the new basic skills. A clear advantage for education and training strategy is that these specifications provide immediately useful guidance to how content should be taught in education and training programs. To take a simple example, non-routine skills require modeling and practice of key processes: analysis, creative thinking and interpretation of information. These can be incorporated into teaching of any formal curriculum: history, language, science and mathematics. Non-routine interpersonal skills can also be learned across the curriculum (even in sports and physical education) if the subjects are taught in ways that require the skills to be practiced and formative feedback is provided.

The analysis also suggests why the technical and vocational curricula and programs of the 1970s and 1980s are rapidly becoming less relevant. These were – and continue to be in many countries – focused on routine skills.

Figure 1: Evolution of the Skills in the US Labor Market, 1959-1999



	1959	1969	1979	1989	1999
Routine cognitive	0	16	6	-12	-40
Routine manual	0	12	11	5	-3
Non-routine Cognitive/Analytic	0	9	15	27	37
Non-routine Cognitive/Interactive	0	0	7	28	49
Non-routine manual	0	-8	-13	-18	-20

Relative demand for non-routine skills grew slowly from 1959 to 1979 in the USA (Figure 1) while the demand for routine manual skills remained low and stable.[5] But changes in the skill composition of the US workforce accelerated beginning in 1979 – a reasonable starting point for the introduction of technological change. The share of employees using non-routine skills -- both analytic and interactive – rose by 22 and 42 percent from the base year of 1979. A fall in demand for non-routine manual skills began as early as 1969, and reached 20 percent over the forty year period. These are the skills of tool and die machinists and cabinet makers. Routine manual skill use fell by eight percent from a small base from 1979-1999. These are the jobs of machine operators and construction carpenters.

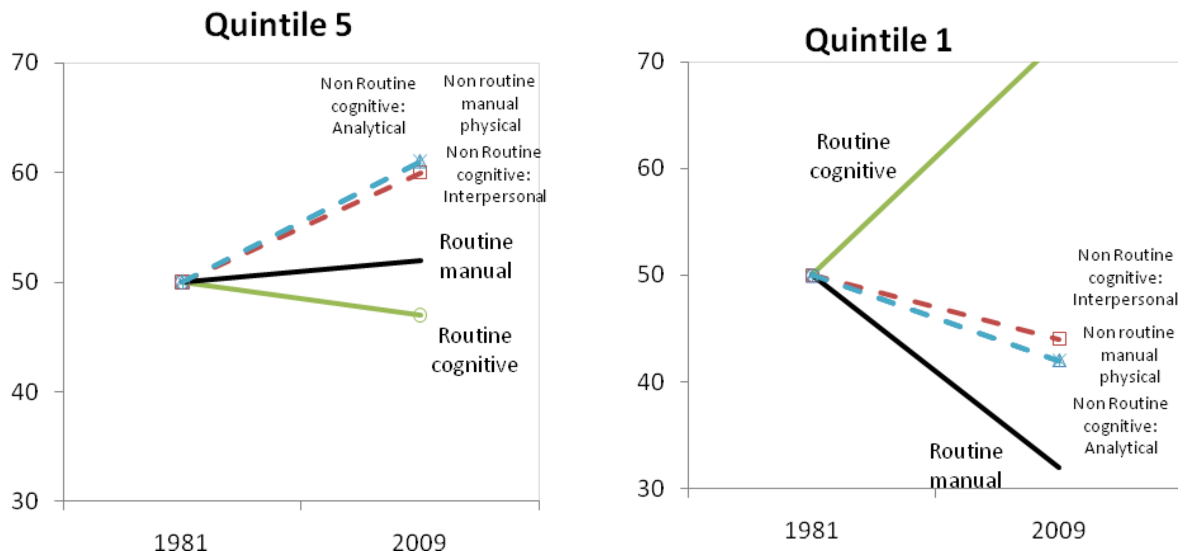
Use of computer software drove the decline in jobs that used routine cognitive skills – accounting clerks and bookkeepers, telephone operators and cashiers. Non-routine manual occupations such as travel agents declined with the rapid growth of online commerce and services. Routine manual occupations – machine operators, construction carpenters – declined as manufacturing was outsourced and technology raised construction productivity (nail guns, pre-fabricated materials, advanced adhesives)

[5] Graph adapted from Luque and Aedo (2011). Note these skills changes were also cited in Blom and Hobbs (2008).

Analysis is just beginning to be applied outside of the USA, but data from Brazil confirm that skill change has begun (Figure 2). But it is happening first in the upper income quintile --- that is, among individuals with the highest income (quintile 5). In the lowest income quintile (quintile 1), the use of routine cognitive skills has been rising as demand for routine manual skills declines. Steadily increasing levels of education in Brazil make this change possible. The number of jobs using non-routine skills in the lowest income quintile has been declining as the value of these skills increases, raising the earnings from such jobs toward the upper income quintiles.

Compared to low income people, individuals in the higher income quintile are more likely to have post-secondary education and enter higher paying jobs. It is in the jobs that require non-routine cognitive and interactive skills that earnings are increasing along with educational requirements as Brazil's economy changes.

Figure 2: Brazil: Evolution of Skills Differences by Income Quintile, 1981-2009



What are the implications of skill change for education?

The implications of these changes in skill demand are important everywhere. Although without labor market data it is difficult to be certain, it is likely that non-routine skills are being used now in the best-paying jobs in the OECS. As is the case for Brazil, these are the jobs for the best-educated, upper income citizens. But in Brazil and other countries that continue to compete in the global economy --the OECS included – the demand for non-routine cognitive and interactive skills will increase. In the medium term – perhaps a decade – demand for the routine cognitive and manual skills needed for

repetitive and accurate work following rules may increase, but as computers take over more and more of this work demand will begin to decline. A key difference between Brazil and the OECS economies lies behind this: in Brazil more than 20 percent of Brazilian employment is in agriculture and an additional 20 percent in industry where routine manual and cognitive skills are in demand. OEC employment share in each were six and seven percent in 2000; the services sector (including government employment) stood at eighty percent. Digitization of work changes skill needs rapidly in the service sector. Equally, non-routine interpersonal skills are in great demand in the tourism industry, where communicating with customers as part of nearly every job.

Given this, education authorities need to think again about the value to students and to the economy of narrow vocational education programs inherited from the 1960s and 1970s. These programs were designed for the occupational structure of economies 50 years ago, where most workers operated alone. Craft and trade skills are still needed in every economy, but the number of employment opportunities has fallen sharply relative to jobs requiring non-routine skills for thinking and working in teams.

Second, the new basic skills (Box 2) should be learned in primary and lower secondary education, not for employment for school leavers, but to better prepare students for upper secondary education.

Third, it seems clear that when non-routine skills are learned in general secondary education the employability and trainability of graduates improves. We know from recent research on PISA examination scores across 60 countries that the quality of teaching is the most important determinant of cognitive achievement, and also that higher autonomy of individual schools in curriculum and teaching decisions also matters to learning outcomes.[6] Investments in the quality of teaching and the governance capacity of schools would go in the right direction.

Fourth, and last, post-secondary education has become increasingly important for the higher levels of non-routine jobs. As we will see in the next section, expansion of post-secondary education has been a common strategy for skill development in many globalized countries.

[6] OECD (2010)

II. HOW EDUCATION AND TRAINING SYSTEMS HAVE ADAPTED TO SKILLS CHANGE

Historically, academic secondary education prepared for the university and technical and vocational education developed in pace with changes in technology and markets as countries in Europe and North America (and also Japan) moved from agriculture to modern sector wage employment in manufacturing, infrastructure and commerce. As global economic integration accelerated, these countries began radical changes in education systems (TVET included); these changes are still underway.

What is the history of TVET before globalization?

Technical and vocational education and training (TVET) has a long history since its origin in medieval apprenticeship. In the 20th century governments in Europe and North America began to be involved. In Germany the famous dual system linked employers and the Lander (States) in a jointly-financed training collaboration that combined theory learning in schools with skills training in apprenticeship. Versions of this system took root in other European countries. The UK began a long set of ultimately unsuccessful experiments with publicly administered apprenticeship schemes and skills councils. In the middle of the century in the USA vocational secondary schools were expanded to meet skills needs of the general expansion of manufacturing after World War II.

In East Asia, rapid and sustained economic growth led to good employment outcomes for all forms of post-basic education, including vocational education and training. Singapore set the gold standard for education and training with direct government financing and management of the national training system that included subsidies for training to firms. Thailand expanded vocational schools to reach 40 percent of total enrollments, with nearly half of the places being provided in private vocational institutions.[7]

The European and North American approaches were exported first to colonies in Africa, the Middle East and South Asia and after independence spread through foreign aid. In these contexts much of TVET was state financed and administered. The expectations were that a skilled work force would attract investment and create jobs, enable the poor to access wage employment, or at the very least divert demand for higher education. In developing countries these systems were not created to respond to skills demand but rather to create social and economic change. None of these expectations were met. The legacy was unsustainably costly schools and training centers with outdated curricula, poor quality teachers and very disappointing employment outcomes.

Emerging from this experience are four main lessons for TVET as it was practiced in low income countries. First, training alone does not create jobs. Second, state management in poorly governed states inevitably leads to rigid curricula and inadequate budgets. The results are lack of flexibility in adjusting to changing skills needs and poor quality. Third, training as a social policy is costly and ineffective. The poor cannot afford the opportunity costs of secondary education, vocational or not. Parents and students resist second-best options.

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[7] Middleton et. al.1991.

In the same period, in countries with high levels of State control (Singapore now, most of East Asia earlier) and rapid and sustained economic growth public TVET was reasonably well managed and most graduates were employed. High recurrent costs could be afforded. It is worth noting that in all East Asian economies employers provided a great deal of training with varying levels of subsidies provided by payroll taxes or from government budget; with globalization post-secondary and higher education have received enhanced priority.

The rationales for State involvement in vocational education were both economic and social, with vocational education often seen as an option for poorer and lower class students. A consequence of streaming student to vocational programs based on test scores in which social class differences had the unfortunate effect of establishing a public image of vocational education as a second rate choice.[8]

A different approach was taken in Brazil, Chile, Colombia, Mexico and nine other Latin American countries, including the Dominican Republic, beginning in the 1940s in Brazil. Employer associations took responsibility for organizing technical and vocational training along with productivity services to firms. Financing has been provided by a payroll levy on private companies that governments in turn rebate to the associations. The training institutes are governed by Boards representing enterprises, workers, employee unions and the government. Fully autonomous, these institutions have been able to respond quickly and effectively to changes in economy, employment and skills demand.[9]

What strategies have been used to adapt education to global competition?

As technological change accelerated wages for employees with non-routine cognitive and interpersonal skills expanded rapidly while wages for routine and manual skills fell, energizing a second phase of education reform. Enrollments in secondary vocational education and training declined as a share of total enrollments. Though relatively smaller, vocational education became more closely linked with employers and employment and increasingly focused on learning of non-routine cognitive and interactive skills.

The history of economic and educational change in the Republic of Korea provides a useful and concrete example of the stages of a strategy that links economic change and skills development (Box 3). During Korea's early drive toward industrialization during the 1960s and 1970s the challenge was to move relatively uneducated youth from rural agriculture to urban manufacturing jobs. Vocational high schools and non-formal training centers, public and private, were the mechanisms. The transition to a second stage began in the 1980s as the agriculture sector declined and both the manufacturing and service sectors expanded. By the mid- 1990's the education and training system had made major adjustments. Enrollments in TVET were capped and began to fall while enrollment in general secondary education expanded rapidly.

As junior colleges and universities expanded, the share of general secondary graduates enrolling in tertiary education reached 90 percent and the share of vocational graduates entering post-secondary education began to rise. By 2007 more than 90 percent of all secondary education graduates (general and vocational) entered post-secondary education. Low skill and technician jobs decreased as a share of employment while jobs requiring tertiary degrees in engineering and technology increased. By 2010

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[8] The classic study on this is Phillip Foster (1965), "The Vocational School Fallacy in Development Planning." In C. Anderson and M Bowman (eds). Education and Economic Development. Chicago: Aldine Publishing Company.
[9] Middleton,et.al (1993); Wolf and de Moura Castro (2000)

Box 2: Evolution of TVET in the Republic of Korea

From a per capita income of $100 in 1965 Korea moved to high income status and membership in the OECD by 1996. Over forty years the economy and employment changed rapidly with agriculture declining, and a period of manufacturing growth giving way to services as a knowledge economy took root. The Asian Financial crisis in 1997 led to historically high levels of unemployment and further economic and employment change (Figure 2.1).

Throughout this period the education and training system was adapted to changes in employment and skill demand. Education and training policy and investment was planned to fit with economic changes (Figure 2.2).

Figure 2.1: Korea: Trends in Employment, 1970-2010

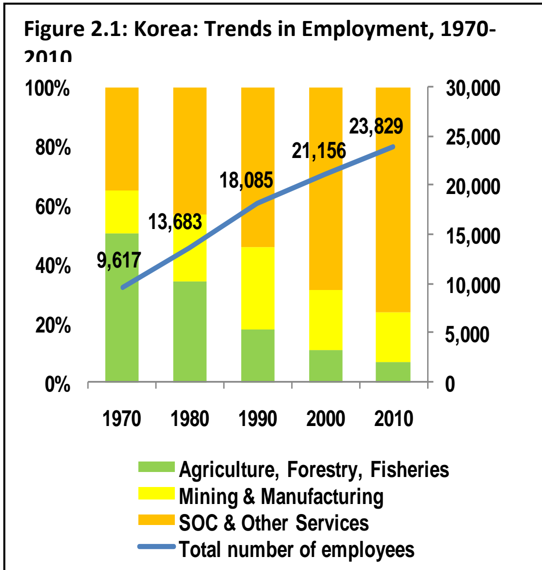
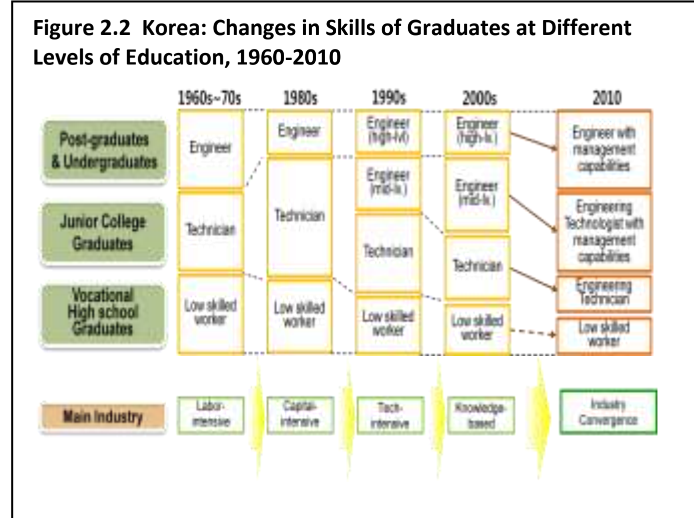


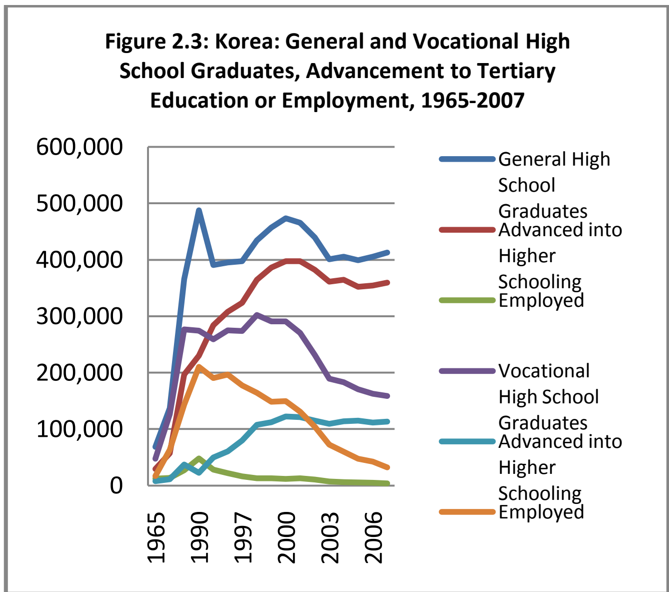
Figure 2.2 Korea: Changes in Skills of Graduates at Different Levels of Education, 1960-2010



Vocational high schools were critically important in the early stages of development when the challenge was to help rural youth move into urban manufacturing employment. From 1965 to 1985 the number of graduates of general (academic) and vocational high schools rose at the same rate (Figure 2.3). The number of vocational graduates leveled off in 1995 and then began to fall while general secondary graduates increased by 40 percent.

As the economy and skill requirements changed, junior colleges and universities were expanded and new programs (especially engineering and technology) were introduced. These programs required good basic skills and enrolled not only the growing number of general secondary graduates but also graduates of vocational schools that benefitted from curriculum changes and better teaching. Beginning in 2001 the number of vocational graduates going on to junior colleges exceeded those going directly into employment. By 2007, over ninety percent of graduates from either type of secondary school went on to post-secondary education

Figure 2.3: Korea: General and Vocational High School Graduates, Advancement to Tertiary Education or Employment, 1965-2007



Sources: Dae-Bong Hwon (2011); Ministry of Education, Science and Technology (2011).

78 percent of employment was in the service sector, 15 percent in manufacturing and seven percent in agriculture.

Korea helped finance education change and expansion by encouraging fee-based private provision of schooling from primary through the university level. In 2006 41 percent of all education expenditure was privately provided. At the tertiary level 76 percent of expenditures were privately financed in the same year.[10] Over the past two decades Brazil, Chile and Mexico have expanded access to secondary and tertiary education and improved the learning achievement scores of 15 year old students on the international PISA examination. Korea, Singapore and Shanghai China now perform best in these examinations, along with Finland and Japan. Higher education enrollment has also expanded rapidly in the OECD over the same period, doubling in Australia and Austria and increasing by 40 percent or more in Germany, Korea, Mexico, and the USA.[11]

The rapid change in workforce skills needed for global competitiveness has also led to change in both the European and North American vocational education models. In Germany the dual system has been simplified and is being surpassed in size of enrollments by secondary and higher education. France has reformed TVET to emphasize post-secondary education.

In the USA, vocational education in traditional craft and trade occupations has shrunk to a very small portion of secondary enrollments, while new models of collaboration between employers and increasingly autonomous schools and junior colleges have emerged. Vocational education has been reformed into Career and Technical Education (Box 3).

Area Vocational Centers (AVC) have been the main strategy for consolidating and improving secondary level TVET in the USA. For example, there are 29 Career Technology Centers in Oklahoma alone, many with multiple campuses. The main features of AVCs are:

- Provide skills in demand in region
- Linked to post secondary technical education (Grades 11-14)
- Serve a network of secondary schools
- Students complete core academic curriculum Grades 9-12
- Part time at AVC in Grades 11 and 12 – requires transportation

Box 3: Career and Technical Education (CTE) in the USA

Today's CTE has evolved from a limited number of vocational programs available at the turn of the 20th century into a broad system that encompasses a variety of challenging fields in diverse subject areas which are constantly evolving due to the changing global economy.
Today's CTE provides students:

- academic subject matter taught with relevance to the real world
- employability skills, from job-related skills to workplace ethics
- career pathways that link secondary and postsecondary education
- second-chance education and training
- education for additional training and degrees, especially related to workplace training, skills upgrades and career advancement

Each state administers CTE in a different manner and ACTE has produced a set of CTE State Profiles to provide clarity and context to these multifaceted and diverse systems. In many cases, state and local CTE programs are "leading the way" with regard to important public policy issues such as high school reform and secondary-postsecondary transition.
See: http://www.acteonline.org

[10] OECD (2011). http://stats.oecd.org/index.aspx?DataSetCode=CSP2010
[11] OECD (2011). http://stats.oecd.org/Index.aspx?DataSetCode=RNENTAGE

- Work placements and internships
- Substantial employer and industry financing

In many locations AVCs operate 12 hours a day and up to 6 days a week to offer students flexible schedules. By serving multiple school districts they have achieved high utilization rates that lower the per student capital costs substantially. Strong links with employers and a high level of autonomy enable the AVCs to employ highly skilled full time and part time instructors.

Less intensive and expensive are School-to-Work Programs (STW). STW programs in the USA generally have these components:

- Prepare students to understand the workplace work
- Senior secondary, academic & technical; pathways to post secondary.
- School systems and local employers plan/manage
- Behavioral skills training & career counseling in school 2-5 hours/week, over 4-6 months
- Supervised work experience, little formal training in employment

Evaluations show that by making school more relevant STW improves student motivation, self-confidence, attendance and program completion. There is little impact on post-school employment.[12]

Career academies expand and extend the STW concept by integrating work skills development with secondary academic courses. They prepare students for a career, not for a job or occupation, and have been shown to improve employability and earnings (Box 4).

Other OECD countries approach the goal of linking school to work in different ways. Norway merged separate general, commercial and vocational schools in 1994, and now offers a three year upper secondary course after ten years of basic education. Students choose between general education and twelve specialized curricula that include preparation for careers such as health and social care and media and communication, as well as more technical occupational programs such as building construction and electrical trades. A similar system is followed in Sweden and Denmark.

What management factors have contributed to the success of reforms?

Underlying all of these reforms are the characteristics of effective secondary schools everywhere. OECD's Programme for International Student Assessment (PISA) collected data on learning achievement in science, mathematics and reading for students aged 15 in 34 OECD countries and 34 partner countries in 2009. Among the Latin American and Caribbean partner countries were Argentina, Brazil, Colombia, and Trinidad and Tobago. Countries that compete with the OECS in the beach tourism business include Australia, Brazil, Thailand, Uruguay and the United States. On the reading scale, Australia and the US scored above the OECD average of 493; Uruguay scored 426, Thailand 421, Trinidad and Tobago 416, Colombia 413, Brazil 412, and Argentina 398.

In addition to testing students, PISA collects data on national economies, education systems and individual schools in search of factors that explain differences in learning achievement within and across countries. The 2009 PISA data findings support the following factors as having impact on average student achievement.[13]

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[12] Hughes, et. al. (2001).
[13] OECD (2010). pp. 14-15.

Box 4: Preparation for Careers in the US and UK

Preparing students for working careers rather than specific occupations has been a goal of TVET reforms in OECD countries. Once an innovation, Career Academies (CA) have become well-established in the US and the UK.

Career Academies are a variation on the comprehensive high school model and usually operate as "schools with schools" in a larger comprehensive secondary school. The goal is to prepare students for transition to employment or to post-secondary education. Currently there are more than 2,500 career academies in the USA, and approximately 100 in the UK. Students choose to enroll in a Career Academy: there is no streaming based on test scores.

The elements of the career academy model in the US and UK are:

- **Learning communities.** Academies typically serve 150-200 students as an organized group within a larger comprehensive school, with the intention of providing a supportive and personalized learning environment.
- **Team of teachers.** An interdisciplinary team of teachers works with the learning community on a continuous basis; staff of employers in the locality participate in the instructional process.
- **Academic and technical curricula.** Courses are organized around a career theme, such as information systems, tourism and hospitality, health care, arts and media which at the same time qualify students for admission to higher education.
- **Structured workplace learning**. Students earn credit for structured and supervised internships as a formal part of the curriculum.
- **Integration of career and academic courses.** Content and skills for career preparation are integrated with academic courses; for example, business mathematics, applied information science for bookkeeping and accounting, human biology for health care.
- **Partnerships with employers.** Employers help design and enrich the curriculum and provide work-based learning opportunities for students, and may also contribute funding for curriculum components.

A rigorous randomized controlled field trial evaluation of the USA career academies that followed career academy students and a control group for four years found that the academies raised salaries of male graduates of the academies by 18 percent over the control group, improved employment and earnings for students that were at high risk of dropping out of school, and that 80 percent of graduates went on to complete a post-secondary credential program.

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For the USA career clusters see: National Career Academy Coalition. http://www.ncacinc.com; for the UK, see Career Academies UK http://www.careeracademies.org.uk
For evaluation, see James J. Kemple (2004) Career Academies: Impact on Labor Market Outcomes and Educational Attainment. MDRC. www.mdrc.org

- "Successful school systems – those that perform above average and show below-average socio-economic inequalities – provide all students, regardless of their socio-economic backgrounds, with similar opportunities to learn;
- Most successful school systems grant greater autonomy to individual schools to adapt curricula and establish assessment policies, but these school systems do not generally allow schools to compete for enrolment;
- After accounting for the socio-economic and demographic profiles of students and schools, students who attend private schools show performance that is similar to that of students enrolled in public schools;
- School systems considered successful spend large amounts of money on education, and tend to prioritize teacher's pay over smaller classes;
- School systems with a higher proportion of students who had attended pre-primary education tended to perform better;
- Schools with better disciplinary climates, more positive behaviors among teachers and better teacher-student relations tend to achieve higher scores in reading."

The 2009 PISA data show that differences among schools across the above dimensions accounted for 30 percent of the variation in student learning achievement after controlling for student socio-economic status.

Many of these factors will be familiar to education administrators, teachers and students, but their importance has now gained empirically-sound support. Together, the findings suggest elements of a reform agenda for improving learning outcomes in secondary schools.

International experience shows that successful pre-employment TVET requires all of this and more. Key additional factors are:[14]

- School governance structures that represent all stakeholders (parents, employers, teacher unions, government) and that have the authority to evaluate school performance, principals, budgets and plans
- Strong school relationships with employers, including employer participation in school governance and programs
- School authority to:
    - enter into formal relationships with employers, including financing arrangements
    - hire part-time instructors
    - modify curriculum to meet new skill needs
- Teacher salaries adequate to attract knowledgeable and skilled teachers that have substantial work experience
- Effective career and guidance counseling to support student curriculum choice and employment search

[14] Field, Simon, et. al (2009); Asian Development Bank (2008); Wolff and de Moura Castro (2004); Gill et. al (2000); and Middleton et. al.(1993)

- Adequate budget for the capital and recurrent costs of laboratories and workshops
- Capacity to monitor student employment outcomes
- Accountability for results

These factors have not generally been characteristic of centralized national education systems, and their absence helps explain why many academic and TVET programs have unsatisfactory academic and employment outcomes.

How is accountability for performance established?

There is now general consensus that higher levels of school autonomy coupled with accountability for outcomes is central to school performance. Accountability means not only regular monitoring and evaluation, but also consequences for school administrators and budgets if performance falters.

Accountability extends to private schools, whether publicly subsidized or not. Here the mechanism is school accreditation with regular review.

The basic elements of establishing accountability are straight-forward but require disciplined management to add value:

- A framework of medium term goals for education and training
- Annual performance plans for schools, localities, state or provinces and nations that set measureable objectives that relate to goals;
- Financing tied to the costs of achieving the objectives and past performance in doing so;
- Monitoring that provides regular and timely data on achievement of performance objectives and indicators, and on costs;
- Periodic evaluations that provide insight into why some schools perform better than others;
- Transparent public access to data and decision-making.
- A management system that requires use of data in decision making and provides appropriate incentives for doing so.

Good practice in secondary and post-secondary education accountability includes valid and reliable measures of student learning achievement and employment outcomes, and the costs of achieving those outcomes.[15]

Standards are crucially important to performance management. Many countries have established independent or quasi-independent education quality assurance agencies to manage the monitoring, evaluation and accreditation processes. Such agencies often lead the development and administration of occupational and qualification standards and frameworks. Key to the success of such agencies is

[15] USA experience with No Child Left Behind shows that accountability without resources and autonomy can lead to unfortunate outcomes, such as closing schools that do not reach objectives but also have difficult challenges and inadequate resources. These are usually the schools for the poor. Equally risky is a narrow focus on cognitive outcomes for high-stakes testing that ignores the broad objectives of education. In the US this has driven art instruction from the primary schools of California and other States.

governance that ensures access to decision making for government, industry, labor unions and civl society.[16]

What are the implications for educational change?

In the Korea case and in the experience of other countries four strategies f0r adapting education to changing economies and skill needs are clear:

- Teach new basic skills in lower secondary across the curriculum
- Teach non-routine skills across the curriculum in upper secondary, both academic and vocational
- Diversify models of vocational and technical education at the upper secondary level
- Expand access to good quality post-secondary and higher education

Implementing reform strategies of this kind requires much more than a vision statement and policy goals. Most important, and best supported by international research and experience, is increasing the autonomy and accountability of education and training institutions. Increasing autonomy generally involves changes in governance, bureaucratic administration, financing, and accountability.

Within this framework, many models for adapting education to the new skills of the global economy have been effective, among them school-to-work programs, area vocational centers, career academies and specialized high schools. Apprenticeship programs have been modernized, often being adapted to small niche industries with public subsidies.

Post-secondary education – in community colleges, specialized schools, colleges and universities – has been expanded and improved to ensure that non-routine skills needed for the new digitized economy, (that students should increasingly learn in high schools) are more fully developed. As noted in the discussion of career academies, high schools and community colleges increasingly collaborate through joint curricula and shared teaching and facilities.

Finally, the PISA data shows that the most successful schools provide students with similar opportunities to learn. Tracking by test scores is being replaced by student choice supported by guidance counseling.

Clearly, changes of this magnitude must take considerable time, especially when capacity for change is low and budgets constrained. Strategy needs to integrate change with capacity building over time. This is often called building the plane while flying it, but it is the only way forward.

[16] National qualification agencies in Scotland and Ireland are good examples. See http://www.sqa.org.uk, http://www.nqai.ie/

III. OECS: ECONOMIES AND SKILL DEMAND ARE CHANGING

Growth in fully globalized OECS economies has slowed, in part due to the global recession but also due to falling firm profitability, with relatively high wages and low worker productivity being a major cause.

The service sector has grown while agriculture and manufacturing have shrunk. Eighty percent and more of all jobs are in private and government services. High levels of unemployment, especially among youth, co-exist with the inability of employers to fill entry-level jobs with young people that have the non-routine and behavioral skills that lower the costs of their training that make them good long-term investments for the firm.

Labor markets are inefficient, in large part due to the absences of labor market information but there are also regulatory constraints on the freedom of firms to hire and dismiss workers.

In this context, employers are giving highest priority for behavioral and cognitive skills in hiring new workers. Traditional vocational and technical skills have become much less important.

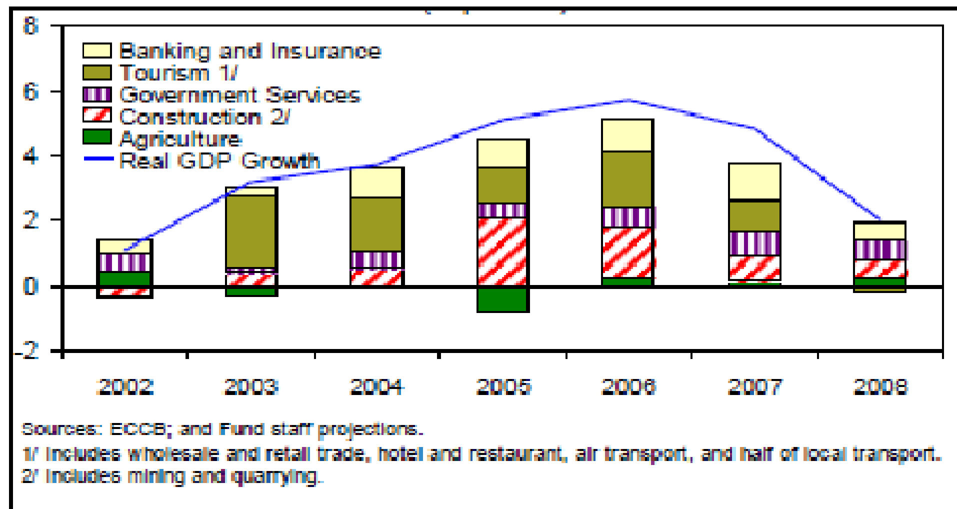
ECONOMIC CHANGE IN THE OECS

Prior to the current global economic and financial crises, OECS member states enjoyed steady economic growth. Per capita income averages above US$7000. Economies are open and relatively competitive, ranking above the median on the global Doing Business Index.[17] Costs of employment, however, are high in line with those in the Latin America Region, driven by a requirement of one's years severance pay for workers made redundant.[18] OECS States have suffered substantially in the current economic and financial crisis, in large part due to the large fall in tourism revenues.[19] The challenge for the economy going forward is to further enhance competitiveness by increasing total factor productivity. A key strategy will be to improve the quality of services and important to this will be raising the skills of the workforce.

Economic growth. OECS economies have become fully linked to the dynamics and standards of the global economy, but are also subject to natural disasters. As shown in Figure 3,[20] tourism and construction have led economic growth in the Eastern Caribbean Currency Union (ECCU) of the OECS. However, tourism's contribution to growth has fallen sharply with the global recession. In 2008 tourism fell to lower levels reached six years earlier with corresponding loss of jobs.[21] Construction expanded in 2005 as rebuilding after major hurricane damage increased, but fell thereafter. These two events signal the vulnerability of the OECS economies to external factors, man-made and natural. External shocks translate, of course, into the number and kinds of new jobs available and the skills that are needed.

[17] http://www.doingbusiness.org/rankings
[18] World Bank (2003B).
[19] World Bank (2010A).
[20] World Bank (2010).
[21] Eastern Caribbean Central Bank data as of March 2010.

Figure 3: Sectoral Contribution to Growth in the ECCU (percent)

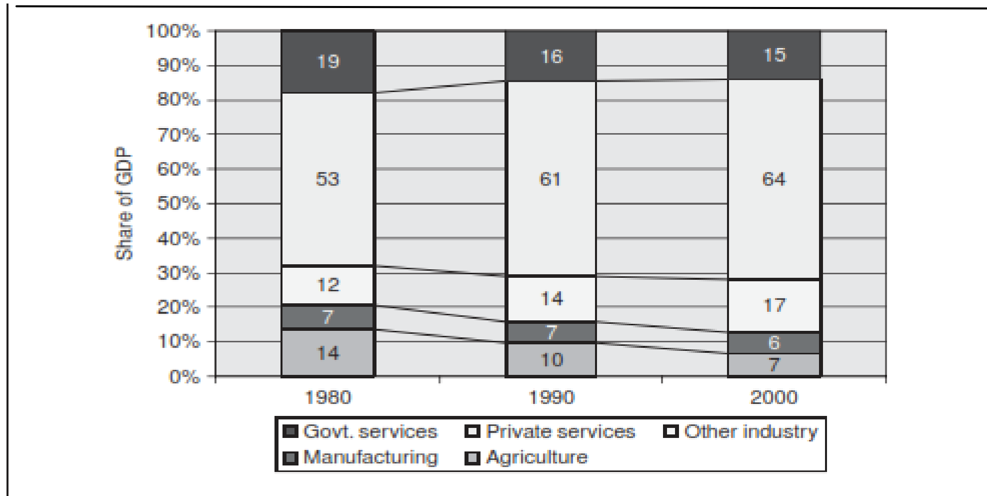


Growth has raised average per capita incomes, but poverty remains unacceptably high. The share of member state populations falling below the poverty line ranges from 18 to 38 percent. Poverty is linked to high levels of youth unemployment, estimated to be above 30 percent for persons aged 15-24 as compared to an overall adult unemployment rate of 11 percent. High crime rates and growth in informal employment – including the international narcotics trade – and social marginalization are among the consequences of youth unemployment.[22]

Employment change. Consistent with the shares of economic growth, the services sector (which includes tourism, financial services and government employment) has grew to employ an average 80 percent of the workforce by 2000 (Figure 4).[23] The dominant position of tourism and banking in economic growth since 2003 suggests that the share in 2008 was higher. Agriculture, once the main driver of Caribbean economies, has declined in importance but remains a more important source of employment than manufacturing.

[22] See World Bank (2010A), (2003A).
[23] Blom and Hobbs (2008).

Figure 4: Transformation of the OECS Economy



Source: World Bank (2005a) based on ECCB data.

Skills demand today. Falling labor productivity combined with comparatively high wages is a major constraint on business development and economic growth, and thus on the competitiveness of OECS economies. [24] This is in part a matter of skills, but as data from a recent survey of employers in Grenada suggest, the range of skills in demand is quite broad (Table 2).

Table 2: GRENADA: Employer Skill Priorities for Hiring New Graduates[25]

Priority	Skill	Priority	Skill
1	Positive Work Habits	6	Mathematics
2	Communication	7	Problem Solving
3	Technical	8	Reading
4	Writing	9	Computer
5	English	10	Team work

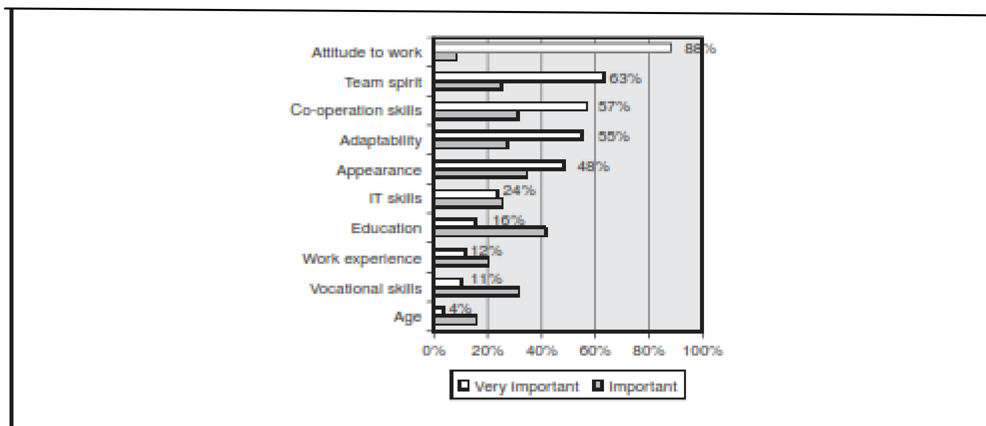
These are the averages ratings of 38 companies, half with 50 or more employees, a third with less than 10 employees, and six with 10-50 employees. The companies are doing business in tourism/hospitality, agriculture, information/communications, construction and marinas. Half of the companies hiring graduates were not satisfied with the quality of their skills.

One of the ten skill priorities is technical. The remaining nine are the behavioral and cognitive skills that make employees flexible and trainable at relatively low cost.

[24] World Bank (2010A), p 19.
[25] Hickling (2008)

Behavioral skills are very important to employers. These are also referred to as "non-routine cognitive interpersonal skills." Figure 5 shows the results of a 2005 survey of employers in St. Kitts and Nevis.[26] The top eight of ten skill needs reported by employers – attitude toward work, team spirit, co-operation skills, adaptability, appearance, IT skills, education and work experience - – are closely related to the trainability of new employees. Ninth of ten is vocational skills, rated very important by 11 percent of employers. Then tenth worker characteristic is age – the least important one.

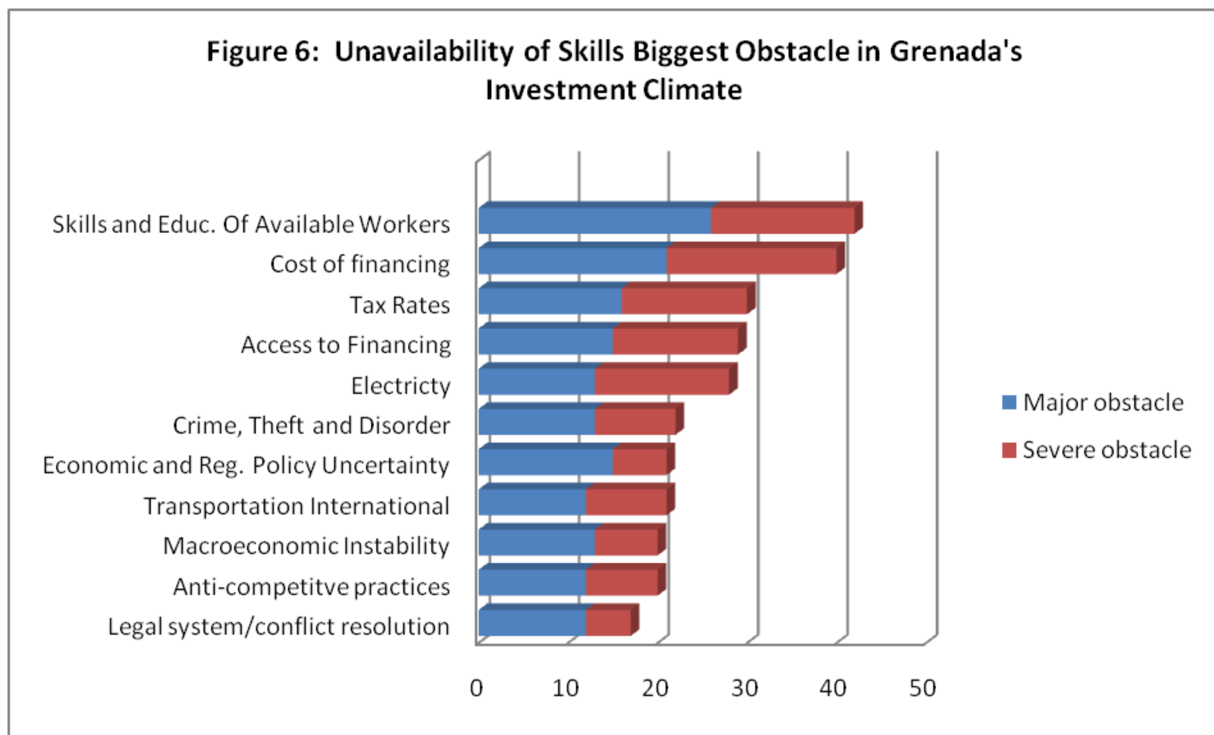
Figure 5: St. Kitts and Nevis: Employers' Desired Skills



Source: OECS Secretariat (2005a).

Skills of course are not the only constraint on competitiveness, but in Grenada at least employers consider them the biggest constraint on attracting investment, a key element of competitiveness (See Figure 6).[27]

[26] Cited in Blom and Hobbs (2008), p 22.
[27] World Bank (2005) p. 145.



The data on employer skills priorities, and on the relative importance of skill constraints on competitiveness, yield a consistent view from employers in Grenada: skills are important and they are not easily found among graduates.

Labor market operation. As reflected in the co-existence of high wages for educated employees with high unemployment, labor markets in the OECS do not operate efficiently.[28] Regulation of wages is one of several factors, as is the constrained supply of graduates at the post-secondary and tertiary levels.

Reliable labor market information – employment, vacancies, wages -- is absent across OECS Member States. This is a barrier to foreign direct investment, employer recruitment of staff, job search, human resources and education policy and planning, and the economic analysis on which growth strategies are based. Employers, parents, unemployed workers, labor unions, educators and the government are all operating without adequate knowledge.

IMPLICATIONS FOR EDUCATION

Employment is the best path out of poverty, and economic growth is the key to the creation of more and better jobs. To return to – or better to improve on – earlier rates of growth OECS member states will need to improve their competitive position relative to other countries, both in the Caribbean region and beyond. Drawing on the comparative advantages of natural beauty and temperate climate on the on hand, and proximity to major economies on the other, tourism and banking services have the most potential for rapid expansion. The importance of these sectors for OECS Member States has been

[28] World Bank (2005).

confirmed in a recent survey to TVET in the Caribbean by the Association of Canadian Community Colleges.[29]

There is consensus across the available studies that the low quality of workforce skills are a major constraint on competitiveness, growth and employment. With the evolution of OECS economies toward the services sector, it is also clear that the skills in demand are not adequately provided through traditional technical and vocational curricula.

Skills demand in OECS economies is changing in the same way as those in other globalized economies, toward non-routine cognitive and interpersonal skills and away from the narrow craft and trade skills taught in TVET curricula designed in the 1970s and 1980s. OECS education and training systems are facing the same need to change that has characterized competitive economies world-wide.

[29] Association of Canadian Community Colleges (2009).

IV. OECS EDUCATION: ASSETS AND CHALLENGES TO CHANGE

OECS Member States have sought to address the issue of skills development since the 1990s. Three recent studies have addressed secondary education, including technical and vocational education, as well as training for unemployed youth. There has been general agreement that a gap between skills demand and supply has reduced the competitiveness of OECS economies. The most recent study by the Association of Canadian Community Colleges is focused on post-secondary education, recognizes changes in OECS economies and skill demand and gives priority to improving the quality of post-secondary technical and vocational education.[30] Published a year earlier, a World Bank study documents changes in OECS economies and, drawing on international experience, recommends improvement of secondary education to teach the cognitive and behavioral skills increasingly in demand and that second-chance training programs for unemployed youth be developed.[31] The third study, commissioned by the OECS Secretariat, documents the weaknesses of secondary technical and vocational education and the difficulties encountered in establishing consistent policies and practices across Member States. The study recommends stronger government management and investment to improve the quality of current TVET programs in OECS secondary schools to serve the seventy-five percent of youth that do not qualify for post-secondary education.[32]

As the OECS Secretariat develops a new education strategy to be implemented across Member States under the Economic Union, key issues in adapting skills development to economic change remain to be addressed. The expectation is that prospects for implementation of the new policy will improve as stronger coordination mechanisms develop. Key issues to be addressed are the potential for scale economies across the Member and Associate States, including the potential for countries to specialize skills development in keeping with employment. For example, agricultural skills development could be a specialization in Dominica.

Overall the challenge is to adapt the significant education assets created by Member States to the new skills required in globalized economies within constrained national resources. Doing so will require that challenges in improving system management and financing be addressed.

EDUCATION ASSETS

OECS Member States have each built education systems that have achieved a great deal in terms of access. Outcomes, however, are increasingly unsatisfactory in changing and competitive economies.

Access to secondary education. Member States have largely succeeded in providing universal access to secondary education as shown in Figure 7.[33] For reference, the unemployment and poverty rates for each Member State are also shown.

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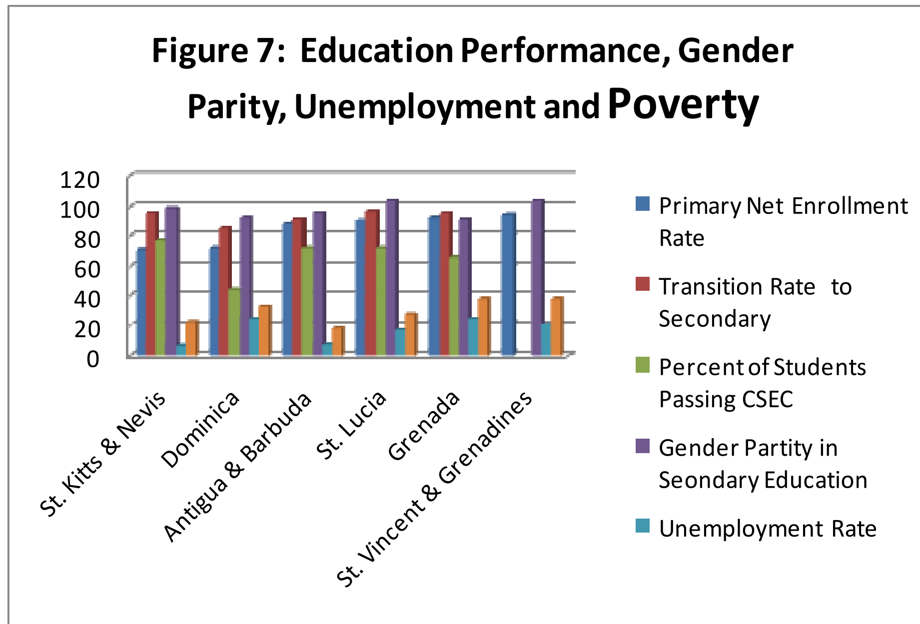
[30] Association of Canadian Community Colleges (2009)
[31] Blom and Hobbs (2008).
[32] OECS (2007),
[33] Data are for 2008 or 2009. Sources: Peter Moock (2010), World Bank (2010). Data on transition to secondary education and Csecexamination scores for St. Vincent and the Grenadines are not available.



The general picture that the data provide is one of economies that have made substantial progress in access to education as measured by the share of the age cohort enrolled in primary education , the proportion of students completing primary education that enter secondary education, equity of education participation for females, and examination performance.[34]

Overall, OECS performance on these indicators is quite impressive, especially for small and economic fragile economies. The accomplishments reflect a long history of commitment to education.

Outcomes. But while access is high, outcomes are not yet satisfactory. The probability of a student who enrolls in primary education entering post-basic education is around twenty percent (Figure 8).[35] In this model, about 60 percent enter the workforce each year with complete secondary education. These are the youth at most risk of unemployment and associated economic and social costs.

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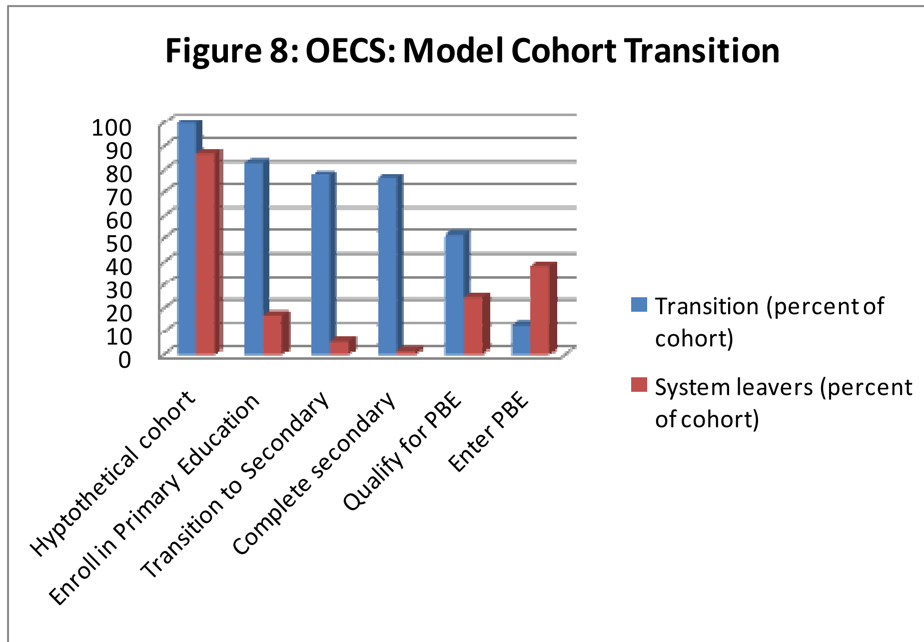
[34] CSEC examination scores taken from Moock (2010) and are dicussed in more detail in pages 30-32.

[35] Estimates have been calculated for a model cohort of 1000 primary age students in each Member State, using the rates for primary enrollment, transition to secondary, secondary dropout, and CXC pass rates as reported in the latest statistical analysis (Moock 2010). The rate of enrollment in post-secondary education cited by the World Bank (0.13) is used to calculate the number of the cohort entering post-secondary education (PSE) for all countries.



Enrollment capacity. With near universal secondary enrollment rates, low student: teacher ratios and small schools (as measured by enrollments) the OECS has excess physical capacity at the secondary level. Primary enrollments and student teacher ratios have been falling across member states due to smaller numbers of new births, creating excess physical and instructional capacity at this level as well.

Private education. Private education features more prominently in primary education than in secondary. At the secondary level, in Antigua and Barbuda, Dominica and St. Vincent and the Grenadines more than twenty percent of students are enrolled in private schools, while in the other Member States private schools enroll two to three percent of the total. This is in contrast to expansion of secondary education in countries such as Korea and Indonesia, where private secondary schools enroll more than 40 percent of secondary academic students and more than half of secondary vocational students. In common with the OECS are public subsidies to private schools. But in East Asia private secondary education mobilizes a substantial amount of education financing.

Pre-employment TVET. Pre-employment vocational and technical education courses are now offered within secondary schools that also offer academic preparation for the Caribbean Secondary Education Certificate (CSEC), an institutional model that is generally known as the "comprehensive" secondary school. There are also institutions focused only on vocational and technical preparation, such as Advanced Vocational Education Center (AVEC) in St. Kitts & Nevis. The CSEC examines both academic and technical/vocational subjects. Non-profit organizations offer short-term training in life and job skills for unemployed youth, a training mode being strengthened through nascent National Training Agencies (NTA) in St. Lucia and Grenada.

Data on the share of secondary enrollments pursuing vocational programs is not available. Reports reveal that in 2002 there were about 1000 TVET teachers in secondary schools in the six member states,

and that the total number of secondary teachers is approximately 3500-4000. [36] Total enrollment in secondary schools in the same six States was about 55,000 in 2010. TVET teachers occupy about one-third of teacher slots, and assuming that academic and TVET courses have about the same pupil: teacher ratios, about one-third of all students would be enrolled in TVET courses, or 18,000 pupils. These are crude estimates, and do not include the associate members states of the OECS.

The review of TVET by the OECS in 2007 argued that courses were designed for those students who do not qualify for post-secondary education on the CXC exams in order to address the "...education and training needs of that 80 – 85 percent who have been labeled as 'failures". [37] It is not unusual for parents, students and employers to have the same negative views of TVET, especially when the quality is low and the training does not lead to good jobs. There is an additional social cost of providing low quality secondary vocational education in comprehensive schools. The "second best" attend the same school as the "best" --- everyone knows that the prospects of the second-best students are not good. The resulting loss of self-esteem and attendant behaviors often contribute to social problems.

No information has been available on the curricula of TVET in the OECS. However, the subjects examined by the Caribbean Examination Council for the Caribbean Secondary Education Certificate (CSEC) are likely to be illustrative of subjects taught (Box 5).

Box 5: Fourteen Vocational Subjects Examined for the CSEC

Clothing and Textiles
Electronic Data Management
Building Technology
Food and Nutrition
Industrial Technology
Information technology

Mechanical Engineering Technology
Office Administration
Principles of Accounts
Principles of Business
Technical Drawing
Visual Arts
Theatre Arts

Source: www.cxc.org

Unqualified teachers lead to unqualified students lacking self-confidence. Qualification levels of TVET teachers in 2002 were quite low. More than half held a certificate or diploma and 10 percent held the Associate degree. About 20 percent held the BA, 10 percent an MA and three percent a Ph.D. About 20 percent have no industrial experience and another 30 percent had one year or less. More than 30 percent of the VET teachers in 2003 were aged 40 years or older.[38]

Employer training. Employers appear to provide substantial training for their workers. Data available for Grenada suggest that firms do a great deal of training (frequently 1-3 months in length or more) and are willing to do more (Table 3). But they find that the low skills of new workers increase the time and

[36] OECS (2007) p. 31; World Bank (2010B).

[38] OECS 2007.

cost of training.[39] Other studies suggest that about half of employers provide training, with higher proportions of large, foreign firms providing more than average.[40]

By comparison, in Indonesia in 2010 40 percent of manufacturing and 38 percent of services companies provided training for skilled workers and a third of training was provided for workers under age 30.[41] By this one standard, employers in the OECS are providing a substantial amount of training. At the same time, as noted earlier, they express concerns that low levels of cognitive and behavioral skills raise the costs of training.

Table 3: GRENADA: Amount of Training Provided to New Workers

Sector	Number of companies providing training to new workers	Amount of Training Provided to New Workers			
		Less than 1 month	1-3 months	3-6 months	More than 6 months
Tourism/ hospitality	16	4	7	5	-
Agriculture	8	3	4	1	-
Information/ Communication	5	-	3	-	2
Construction	5	2	2	-	1
Marina	4	1	1	-	2
Totals	38	10	17	6	5

Learning Outcomes. Competency-based examinations administered by the Caribbean Examination Council (CXC) are the principal means of assuring the quality of secondary and post -secondary education for seventeen countries and territories in the Caribbean region.[42] The Caribbean Secondary Education Certificate Examination (CSEC) is the gateway to post-secondary and tertiary education. Beginning in 2007 CXC also offers the Caribbean Certificate of Secondary Level Competence (CCSLC) which measures learning of basic knowledge, competencies and values that all secondary students should master, but at present is not accepted for entrance to post-secondary education. The CCSLC is intended to provide a certificate useful in finding employment, and represents an important step toward recognition of general skills. CXC is also leading development of a Caribbean Vocational Qualification (CVQ) system.

A high stakes test, the CSEC has significant impact on the formal curricula of secondary schools and the expectation of students, teachers, parents and wider society. That the CXC annually sends to teachers a

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[39] Hickling (2008). These are the averages ratings of 38 companies, half with 50 or more employees, a third with less than 10 employees, and six with 10-50 employees. The companies are doing business in tourism/hospitality, agriculture, information/communications, construction and marinas. Half of the companies hiring graduates were not satisfied with the quality of their skills.

[40] Blom and Hobbs (2008)

[41] World Bank (2010). INDONESIA SKILLS REPORT: Trends in Skills Demand, Gaps and Supply in Indonesia. Human Development Department, East Asia Region. Draft.

[42] http://www.cxc.org

report that analyzes student examination performance on the CSEC is formal recognition of this influence, and a laudable effort to improve teaching and learning.

Concerns have been reported that the overly "academic" focus of the CSEC and its corresponding impact on secondary curricula reflect a bias towards those students continuing on to post-secondary education and that secondary education is therefore not relevant to the world of work.[43] As discussed in Section I, the changing skills required in global economies do require the skills that can be learned in academic secondary education. And while the concerns expressed might be relevant to skills demands of the past, they are likely to reflect a general dissatisfaction with the outcomes of secondary education.

More relevant to the future is what CSEC results reveal about the levels of learning in secondary education (Box 6). Available data show that CSEC scores have been rising, at least on the pivotal English A test that measures language skills.

Worrisome, however, are the reports of poor student CSEC performance on test items that require critical thinking, analysis or communication. Responses of this kind indicate that students who fail to qualify for post-secondary education lack basic skills; these are the young people that seek to enter the workforce. The CSEC data confirm employer views that they lack skills and are therefore costly to train.

[43] Blom and Hobbs (2008)

Box 6: A Quick Look at CSEC

Average CSEC test results are commonly thought to be unsatisfactory because of low average scores. As shown in Table 6.1, it does seem that on average students sitting for CSEC get fewer than half of answers right than their peers in the USA. The good news is that CSEC test scores have increased.

Table 6.1: CSEC English Test Scores

2010 CSEC English A				
Year Administered	**2007**	**2008**	**2009**	**2010**
Average Number Items Correct	78	75	82	85
Total Possible Points	190	190	190	190
Average Percent Correct	41	39	43	.45

Annually CSEC reports to teachers on how students performed on examinations in academic and vocational subjects. Here are: quotes from these reports:

English A: "The summary expected from candidates writing the ... examination is one demanding the skills used in every-day situations where what is said or what is written may need to be put into a concise form ... Large numbers of candidates continue to have problems comprehending the passages set. This is directly related to the lack of comprehension skills generally. Poor vocabulary, poor understanding of grammar and punctuation, weak grasp of connotative language, and weak reasoning are among the elements contributing to misinterpretation."
Textiles: "{Candidates] were unable to differentiate between fad, fashion and classic as it relates to clothing. Most of the given reasons did not support the term used to describe the designs .. generally had difficulty in calculating fabric needed for making curtains. The process for determining yardage was not known by most of the candidates who attempted the question."
Information Technology: "This question tested candidates' ability to arrange the five given steps in problem solving in the correct sequence.. . Most .. were able to identify the first step in problem solving but were not able to list the remaining steps in order."
Principles of Business: "...the question required candidates to identify two indicators of economic growth... A popular misconception was to confuse population growth with economic growth; hence, factors such as teenage pregnancy and migration were identified as indicators of economic growth."

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Sources: http://www.cxc.org/; www.**naep**net.org

Students (presumably enrolled in secondary TVET courses) chose a relative few of the 14 TVET subjects offered. Most popular are clothing and textiles and business courses. Most technical subjects are not popular with students who register for tests (Box 7), suggesting that these courses are not frequently chosen, perhaps because parents and students perceive a lack of employment opportunities, or that students and teachers lack confidence in sitting for CSEC.

Box 7: OECS: The Technical Tests CSEC Registrants Want to Take

In 2009 100 percent of student registering for the CSEC selected the English A examination and 97 percent chose the Mathematics examinations. The most popular technical subjects were Principles of Accounts B (38.7%), Agricultural Sciences (31.5%) and Principles of Accounts A (29.6%), Information Technology (29.4%) and Clothing and Textiles (26%). Ten percent or fewer took other technical subjects.

The domains of the popular subjects require routine cognitive skills. Pass rates were about 50 percent.

Recognizing the employment skills required by Changing technology, CXC is revising technical Examinations to measure those skills.

Caribbean Examinations Council (2010). New Directions in Technical Education. Presentation.

Subject	
Agric Science DA	2.0%
Agric Science SA	31.5%
Clothing & Textiles	26.0%
English A	**100.0%**
English B	20.0%
Food & Nutrition	10.1%
Home Econ Mgmt	6.1%
Information Tech	1.2%
Mathematics	**96.8%**
Music	0.8%
Office Admin	19.3%
POA	29.6%
POB	38.7%
Technical Drawing	9.3%
Theatre Arts	0.9%
Visual Arts	5.6%
EDPM	9.3%
Phys Education & Sports	4.6%
Building tech (Constr)	1.8%
Building Tech (Woods)	2.4%
Elec Tech	4.0%

EDUCATION MANAGEMENT

OECS Member States have developed substantial human and administrative infrastructure for the management of steady state education systems. These are strong assets for change. But still missing in most States are the critical flows of information about school performance and labor market realities that are essential to adapting education system to rapidly changing economies. Collaborative relationships with employers appear only to be developing around the National Training Agencies (NTA) and youth training projects in St. Lucia and Grenada.

Ministries of Education are the apex authority in these small States. The largest, St. Lucia, enrolls about 55,000 students; the smallest, St. Kitts and Nevis enrolls around 10,000 students. Small size and good access to schools are assets for management. The Minister in St. Lucia could inspect every secondary school by visiting one each week during the school year, and the Minister in St. Kitts & Nevis could do so before the Christmas school break. Personal knowledge can mean a great deal to good management.

All Ministries have advisory boards and councils that represent stakeholders, including employers. Some date back to education laws passed in the 1990s, for example in Dominica, Antigua and Barbuda, and Grenada. At present writing it is not known how active these advisory bodies are. But encouragement regarding participation is found in the 2009 St. Kitts and Nevis education White Paper that outlines a long term plan for education development. The planning exercise was quite participatory, representing

the private sector, principals and teachers, social and religious organizations, parent teacher associations, teacher unions and experts.

But perhaps because of size, Member States have been slow to develop and use effective monitoring and evaluation systems, with the possible exception of St. Lucia. The legal and policy basis for education management varies across Member States. These instruments are important to planning for school effectiveness and efficiency when systems operate at steady state. They are critically important for investing in and managing educational change.

As most reports on OECS education have noted, governments, employers, schools and families do not benefit from labor market information. Most hiring of low skill workers takes place informally with social networks playing a large role. The lack of labor market information makes it very difficult to adapt education institutions to rapidly changing markets for skills. One report notes that in St. Lucia in 2005 there were 145 students enrolled in sewing courses but only 390 people were working as machine operators in the economy, many of whom did not operate sewing machines.[44] A very large proportion of the 145 students would not have found jobs for which they were trained.

School counseling has recently been introduced in St. Lucia and St. Vincent and the Grenadines. This is an important step toward providing students with information about education and career choices, but without labor market information career advice is likely to be based more on student interests and aspirations than on job openings.

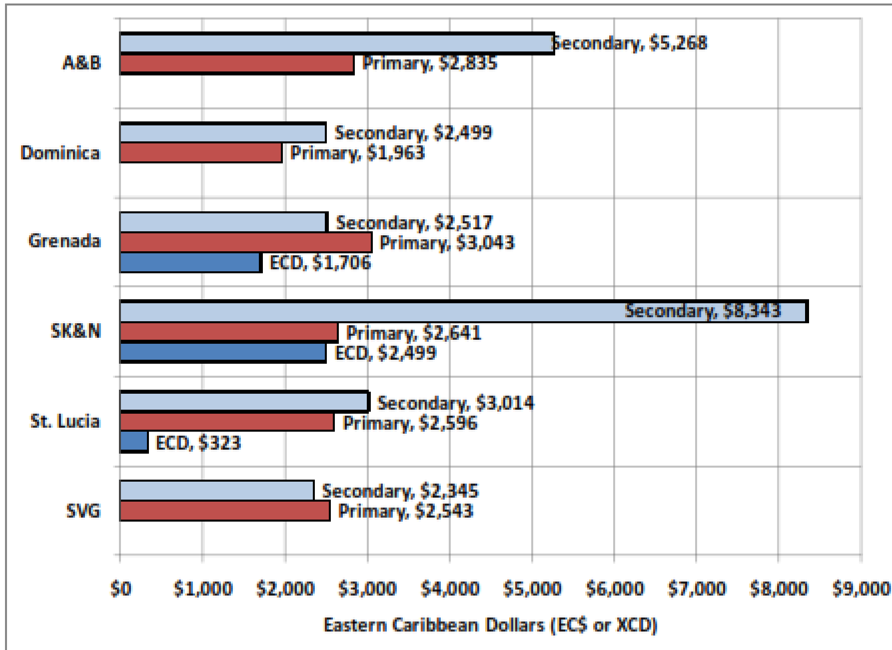
Formal collaborative relationships with employers appear to be at the early stages where employers complain about the skills available from the education system but aside from very high level Councils and Committees lack forums through which their positive ideas can be communicated. Incentives to principals, teacher and parents to initiate such partnerships may not be clear or effective.

Progress has been made, but the level of school autonomy and authority characteristic of effective education change has not yet been achieved.

Data also suggest that States use different criteria in allocating budgets between levels of education (Figure 9). The data show the budget cost per student at different levels of education. Antigua & Barbuda spends twice as much annually for a secondary student than for a primary student; in St. Kitts & Nevis the expenditure ratio of secondary to primary is more than 3:1. Less is spent per pupil at the secondary than at the primary level in St, Vincent & the Grenadines and Grenada. These differences are too large to be accounted for by variations in teacher salary levels. Nor do they seem to be related to CSEC examinations results, or to the age of teachers, which might be a proxy for salary levels (Figure 10).

[44] Blom and Hobbs (2008).

Figure 9: OECS: Unit Fiscal Costs by Member State, 2008[45]



With more variables and data and robust statistical analysis, it should be possible to explain these differences more clearly.

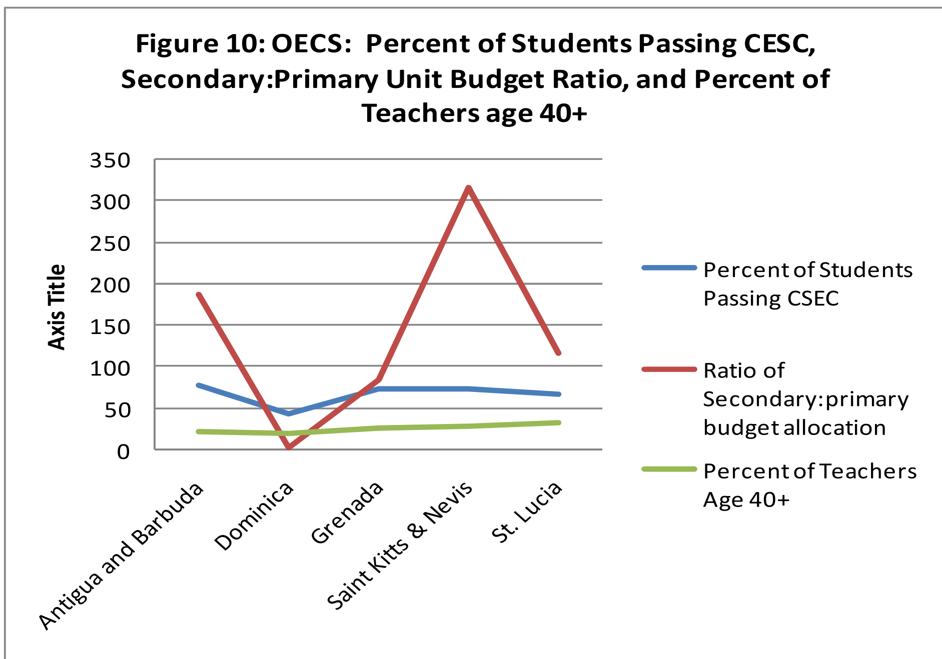


Figure 10: OECS: Percent of Students Passing CESC, Secondary:Primary Unit Budget Ratio, and Percent of Teachers age 40+

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[45] Moock (2010)

However, there may be a simple explanation: budgets are allocated based on historical patterns. This is the well-known practice of giving each institution a budget based on the one from the prior year. Some support for this view comes from a comparison of two schools in an OECS country (Box 8).

Box 8: A Tale of Two Schools

GHS and CHS are situated 20 minutes from each other in one of the OECS countries. The former is located in the capital and the latter just outside. At the CXC examinations in 2003, 2 percent of the exam-takers passed Math and 52 percent passed the general proficiency requirement at CHS, whereas at GHS, 89 percent passed Math and 96 percent passed the general proficiency requirement. Large differences equally exist between the schools in repetition, dropout and completion rates. A range of factors explain the disparities in learning outcomes, namely: (i) school financing; (ii) academic selection; (iii) familial and institutional enabling environments; (iv) quality of teaching staff; and (v) infrastructure.

• School financing. In the past, CHS received around half the per pupil funding from the government than did GHS.

• Academic selection. CHS draws from the bottom quintiles of those that passed the primary-to-secondary entrance examination (“common entrance”), while GHS skims the cream.

• Enabling environment. Despite catering to a higher share of at-risk youth, CHS has no student counselor and fewer extra-curricular activities compared to GHS which employs both a counselor and nurse, and the GHS students are from supportive, engaged and stable family environments.

• Training and motivation of the teaching staff.

• School infrastructure. GHS sports a fairly well-equipped library and science labs in sharp contrast to CHS’ run-down infrastructure.

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Taken verbatim from World Bank (200

IMPLICATIONS FOR EDUCATION CHANGE

OECS Member States have established the capacity to manage steady-state education systems but as currently configured the capacity of education systems to change and adapt to new skill needs needs to be strengthened.

Member States have succeeded in improving flows of students into secondary education. But even as nearly all students enter secondary education, most do not now acquire the knowledge and skills needed to pass the Caribbean Secondary Education Certificate (CSEC) examination at the level required for entry into post-secondary education. Perhaps as a consequence of low demand, OECS capacity for enrolling students in formal education after completing high school is small relative to potential demand if the quality of education improves.

Excess physical capacity exists in the OECS schools. With near zero population growth, enrollments are falling in primary education everywhere and growing at the secondary level in some but not all Member States. Student: teacher ratios are low at both levels, and the schools are small in terms of enrollments.

Despite the many policy studies there is very little data available on the TVET programs. What is available suggests that the quality and relevance is low. Most programs are in secondary schools, where the majority of teachers are not qualified and there is little evidence that schools collaborate with employers. There are post-secondary programs, such as the Area Vocational Education Center in St. Kitts & Nevis, and in the community colleges. But these programs remain to be mapped and analyzed. Employers train a substantial percentage of new employees (perhaps more than half), but find it a costly venture because of the low entry skills of young workers. There are a small number of training programs for unemployed youth, a costly second-chance option for those that the schools have failed.

For practical purposes, the examinations of the Caribbean Examination Council are the main measure of quality assurance. These assess both academic and vocational outcomes, and a new certificate for secondary school leavers is now in place. Data on examination performance is regularly fed back to teachers who operate with curricula determined largely by examination requirements. Work is underway to develop local skills standards as part of the region-wide Caribbean Vocational Qualifications framework, but these are some way from being operational.

CSEC examination reports to teachers consistently show that those sitting the examinations lack skills in problem-solving, communication, applying concepts and analyzing information. Among TVET subjects, only textiles and business courses (including IT) seem popular among students, possibly reflecting either low employment demand in the other occupations.

Education systems appear to be managed largely without data on inputs, outcomes or costs. Labor market information is absent in the OECS, with the consequences that employers and employees have difficulty finding each other, that vocational teachers don't know where employment opportunities for their student will be nor the skills that graduates will need to be hired

V. STRATEGY OPTIONS

The forgoing analyses and discussions raise key issues to be addressed in developing skills in in OECS Member States. The issues lead to possible strategic goals and options. Changing education goals and structures to address the issues will require significant changes in system management. These are the topics addressed below.

ISSUES TO BE ADDRESSED BY EDUCATIONAL CHANGE

The previous analyses of changes in skills, national changes of education to adapt to skill changes, the changes in OECS economies and employment, and the assets and challenges to education change across Member States suggest seven key issues for consideration in developing strategy options for change. In keeping with the focus of this Strategy paper, these are issues in education in formal secondary education.

1. <u>As currently configured, TVET is ineffective in developing skills for employment in the current and future OECS economies.</u>

   A major cause for ineffectiveness is the global change in skills needed by employers, a change in which OECS Member States are fully participating. As taught in comprehensive secondary schools, mostly by unqualified teachers, the technical and vocational subjects available to students do not prepare them with the job skills that employers need, much less the non-routine cognitive and interpersonal skills that will be increasingly in demand. Not surprisingly, TVET is seen as a second-best options for second-best students.

2. <u>Academic (general) secondary education can enable students to develop the non-routine cognitive and interpersonal skills in demand by employers at low cost compared to good quality TVET, but the performance of schools in teaching these skills as measured by CSEC results is quite uneven.</u>

   This matters greatly, because at least sixty percent of students completing secondary course work (and most probably more) enter the labor market unprepared for training in employment; this applies to both academic and TVET students.

3. <u>Employers do a great deal of training, and would probably do more if entry level workers had better cognitive and behavioral skills and if they had voice in education policy and management.</u>

   Employee training is a cost that employers must manage in order to be competitive in a global economy. Low employee productivity is another constraint on competitiveness. The evidence available suggests that employers would do more training if entry skills were better and costs lower; international experience shows strongly that when employers have strong voice in curriculum and school management they will enter into partnerships that lead to significant impact on the employment chances of graduates.

4. For both academic (general) secondary education and secondary TVET to change and improve management and financing arrangements have to be further developed.

   While there have been no studies on comparative school performance in OECS Member States, international experience strongly suggests that management and financing gaps in centralized school systems are a major cause of uneven performance. Certainly, current patterns for public financing of schools seem not to be based on need or performance.

5. OEC Member States have created substantial education assets, reflected in universal access to secondary education; the challenge is to adapt these assets to the new purposes required to give students the opportunity to learn skills for success in employment and post-secondary education, and employers the skills they need to be competitive and grow.

   Secondary schools are small in enrollment terms, teacher: student ratios are low and the teacher force is aging. These factors combine to make possible incremental change that adjusts education in the right direction within constrained financial resources.

6. Education change strategies and programs will necessarily have to vary across OECS Member States to take into account local assets, political realities and resources.

   The issues, and the strategies options suggested below, will of course be addressed in an integrated way in the new OECS education strategy. This is the right thing to do, because issues of school and student performance at the secondary level depend fully on performance that the primary level, and the incentives provided by opportunities for education after high school. But a balance will need to be struck between issues and approaches held in common across the Economic Union, and the realities of independent Member and Associate States.

7. The Economic Union and the new OECS Education Strategy offer the opportunity to strengthen collaboration across Member and Associate States.

   Federal education systems seek to strike a balance between the role of member states and central authorities in all things, including education. As the new education policy is formulated and discussed, opportunities for achieving scale economies and overall OECS education system flexibility should be considered. A possible example would be for Member and Associates to specialize to some degree in skills training using the CVQ as a “skills passport” to encourage both student and worker mobility.

STRATEGIC GOALS

The issues suggest three strategic goals:

A. Make academic (general) secondary the default option for all students while substantially improving learning outcomes in the core curriculum and in non-routine and behavioral skills and also by linking education to careers.
B. For TVET, diversify models to increase flexibility and link closely to employers and employment; improve quality substantially while reducing enrollments.

C. Leverage employer training through collaboration and improving student cognitive and behavioral skills.
D. As the new system develops, enable parents and student to choose among options at the secondary level, making TVET a good choice, not a second-best option.

There are many pathways to these goals: some are suggested below.

STRATEGY OPTIONS FOR SKILLS DEVELOPMENT

Options for changing any education systems, including those of the OECS Member States, are many. It is generally important to first establish a general sense of strategic direction, then to consider curricular and institutional changes, and then to look at changes that curricular and institutional changes might require in system management and financing. This is an iterative process through which changes and institutional capacity are considered and reconsidered in light of political and financial possibility as education change is debated and planned, and also periodically as the results of earlier implementation become available.

Drawing on the previous three sections a general sense of direction, curricular and institutional options and possible changes in system management are presented for consideration within the OECS.

A General Sense of Direction

With access established, international experience suggests that it is now time for OECS States to change their education systems to enable youth to gain the skills needed for success in the global economy. Strategies for change will need to be accompanied by capacity building for the decentralized management that facilitates linkages between school and work while ensuring that all students master the skills of the new global economy. The recommended strategies are: a) to enable lower secondary completers to choose their upper secondary course of study, rather than track them into academic or vocational courses; b) improve the quality of teaching by focusing at the lower secondary level on the New Basic Skills, and at the upper secondary level on non-routine cognitive and interpersonal skills, and behavioral skills across all areas of the curriculum; c) experiment with models of employer/school cooperation that give all students different levels of work experience during secondary school;
d) diversify the kinds of schools available to increase flexibility in skill provision and expanded choice for students and parents.

To carry out such reforms, OECS education systems will need to build capacity to a) establish effective collaboration with employers, b) improve governance for flexibility and accountability, and c) improve incentives by moving from routine budgets toward targeted performance-based public financing. The costs of sustaining reforms could be generated by raising student: teacher ratios through normal attrition of the teaching force, ending expensive teacher bursaries for overseas training and possibly introducing small student fees at the secondary level. The income from fees would be distributed equitably on a per student basis to all secondary schools.

Curricular Options

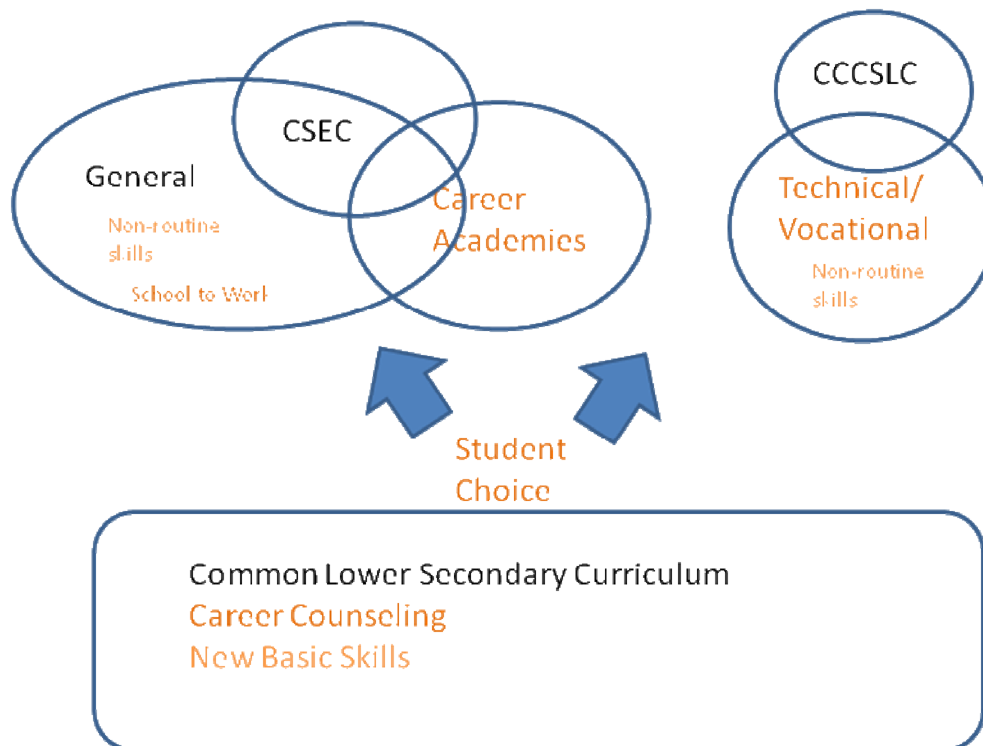
OECS Member States have created significant educational assets. Classroom and teacher capacity have been establish for universal completion of secondary education. Ministries of Education provide policy guidance and oversight. The CXC provides an effective quality assurance function, and work is underway

to develop vocational qualifications standards. From the data available it would appear that the academic secondary program is much stronger than TVET, which is rooted in a design now abandoned by most countries.

The challenge is to adapt and further develop these assets in order to significantly improve the skills of graduates, both for success in post-secondary education and for employment. Adaptation should be an incremental process that encourages learning from experience. Korea is now in a fifth stage of adapting the education to economic change: each stage took about ten years (see Box 2).

One way to make strategic changes concrete is to show how they might look in curricular terms. One of many combinations of options is shown in Figure 11. These options would raise the status of career education jointly organized by schools and employers within the CSEC standards, and improve the quality and desirability of TVET by gradually converting some school facilities to stand-alone technical and vocational schools (the Scandinavian model).

Figure 11: Idealized Curriculum Structure



This diagram reflects a blend of current policies with some possible changes. The framework is that of the current structure of lower and upper secondary education along with the CXC CSEC and CCSLC examinations. As is currently the case, all students would complete a common lower secondary curriculum. And, in a general sense, there would be a general program and a vocational program at the upper secondary level.

A first set of possible changes have to do with the general upper secondary program. Two options are shown. The first would be the option of career academies aligned with the general curriculum. Career academies integrate learning at work with completion of the academic curriculum. Active employer involvement is required. Students complete learning at work requirements along with the core academic curriculum. As experience is gained, core courses are often adapted to the CA program – for example, French for tourism or English writing assignments done in connection with learning at work. In the OECS it might be a good idea to add a third year to the upper secondary curriculum for CA students, although in the US and UK students often work around during school breaks and holidays. Happily students can sit for the CSEC out of cycle.

Students who do not choose the career academy option could have a required (but not examined) school-to-work experience equivalent to a one semester course. This would familiarize them with the workplace, and would be valuable even for those students who enroll in post-secondary education.

A second path for students would be toward technical skill programs operated primarily in vocational or technical secondary schools (not in comprehensive schools). AVEC in St. Kitts appears to be this kind of school. Depending on the curriculum students could prepare for the CSEC or CCSLC while also completing their skill courses. Here again, formal collaboration with employers for learning in work opportunities would be a requirement.

Ideally, students would choose one of these pathways during the final year of lower secondary, with support from teachers trained in counseling and "visiting days" at both general and technical schools. Programs, if not institutions, should have web-sites.

Choice is more equitable than tracking by scores on cognitive examinations, and also helps reduce the second class status of vocational education. The CEE should still be administered and the results shared with students and their parents, but not be the sole basis for decisions on a student's future.

There are risks in a choice system, notably that some programs will be more popular than others. This is a good outcome from a training market point of view and can usually be managed through schedule and shifting arrangements in an interim period. Of course, if demand for a particular program is very low, it can be either modified or eliminated to make room for new ones. There are bureaucratic issues in this kind of flexibility of course, but without flexibility the system will not be responsive to economic change.

Institutional Options

OECS Member State secondary schools are a vital asset. Most are comprehensive schools, offering both academic and vocational courses. There appear to be a relative few single curriculum schools.

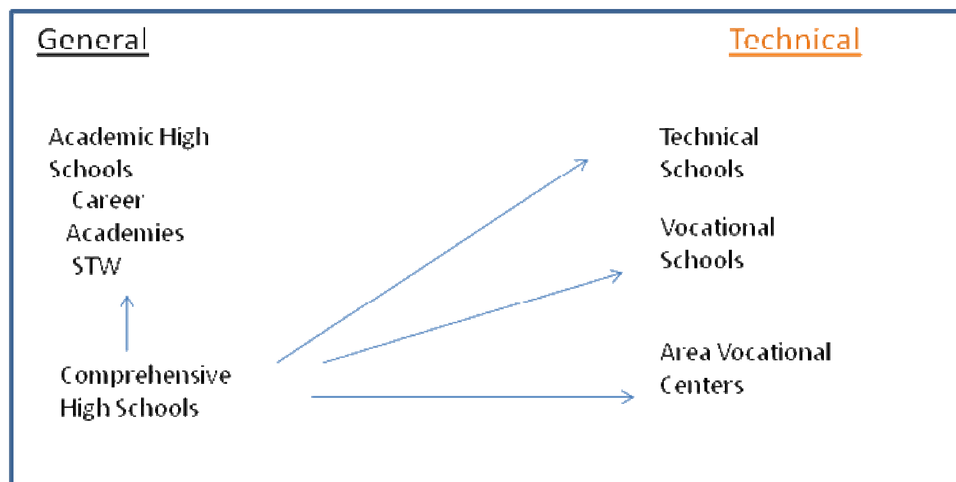
Adapting existing schools to the new skills required in OECS economies should be a planned but incremental process. Ten years after change begins a new pattern of school types should be in place. An example of how schools of different types could be developed incrementally is shown in Figure 12.

Again, Figure 12 is not a proposal but a framework for thinking. The underlying strategy is to gradually move comprehensive school facilities towards different uses to create more choice

and flexibility. Clearly there would have to be a transparent decision process for doing this, one that deeply engages teacher organizations, employers and communities.

As shown, some comprehensive schools would move to the "academic" school model with career academy and school to work programs. Students in other comprehensive schools could do the vocational courses at an Area Vocational Centers (AVC). Equipping and training staff and management for AVCs could be an attractive donor project. Employer participation in governance and programs would be essential. Students would complete the CCSLC coursework -- and perhaps some CSEC subjects --at the comprehensive school but their vocational courses at the AVC. AVCs could also work with employers to organize learning in work.

Figure 12: Possible Institutional Arrangements



The AVC model could also be attractive for niche employers, such as boat building and yacht maintenance. In principle, a small number of employers could collaborate with an AVC to build a combination of theory and practical skill courses.

A second option would be for some comprehensive facilities to become vocational or technical schools, serving particular segments of the skills market while meeting student interests. For the OECS, schools for the Performing Arts, Information Technology, Art and Design and Agriculture might serve both students and the economy well.

The challenge of implementing these options should not be understated. But the small size of OECS schools and the relatively small number within each Member State make the tasks manageable. Moreover, this generally should not be a centrally planned exercise, but rather one that is based on consultations and analysis and then implemented through criteria-based grants based on school

proposals endorsed by employers, the communities and other key constituencies.[46] Privately managed schools (all of which are publicly subsidized) should of course be free to participate.

Capacity Development for Managing a Diverse and Flexible System

Building capacity for flexible, decentralized and performance based management is absolutely essential if a flexible and adaptive skill development system is to succeed.

As the diversity of school type increases, the autonomy of school management must increase. A Performing Arts School would have different schedules, activity blocks and space use than an academic high school. Part-time expert instructors would be quite important and the School Director must be able to hire and dismiss them on an as needed basis. The Director must enter into multiple agreements with performing arts organizations and venues. Importantly the Director must be able to raise and use funds for the school program. Not only specialized schools, but also academic schools will need this level of autonomy to organize Career Academies with employers, organize schedule and implement teacher in-service training in pedagogy needed for teaching new basic and non-routine skills.

A decentralized school system operates very differently than a traditional one. Management is based on data, budgets are related to performance and direct oversight of schools is passed to governance boards for each institution. Without these capacities, properly organized, centralized ministries will inevitably strangle progress, not out of lack of commitment but because "rules are there to be obeyed."

But as schools grow more autonomous Ministries can move to the most important roles of all: leadership, performance monitoring and innovation. But these roles require regular and valid information of many types. Decision-making becomes based on data, not only on rules. Ministries also play important support roles: in OECS Member States, this would include providing technical and political support to schools as they change.

An education change program and a capacity development program can be implemented together, of course. Suggestions for phasing key capacity development goals and activities may be found in Table 4.

Build Sustainable Collaboration with Employers. Globalization and the rapid expansion of secondary education has led to the increasing recognition by educators and employers that collaboration is necessary if both education and competition goals are to be met. Employers want to be able to hire well educated and trained engineers, technicians, and business economists from post-secondary programs. For secondary school graduates, employers need educated labor market entrants who have the affective, behavioral and cognitive skills that are needed for effective and efficient training in employment. Educators want their graduates to lead healthy, responsible and productive lives. Narrow preparation for university is no longer adequate for achieving these outcomes.

Sustained collaboration is essential to including learning about work and learning to work – the cognitive and behavioral skills – in schools.[47] Employers will invest in public (and private) education when they have effective voice in governance and curricula. They bring with them not only economic resources,

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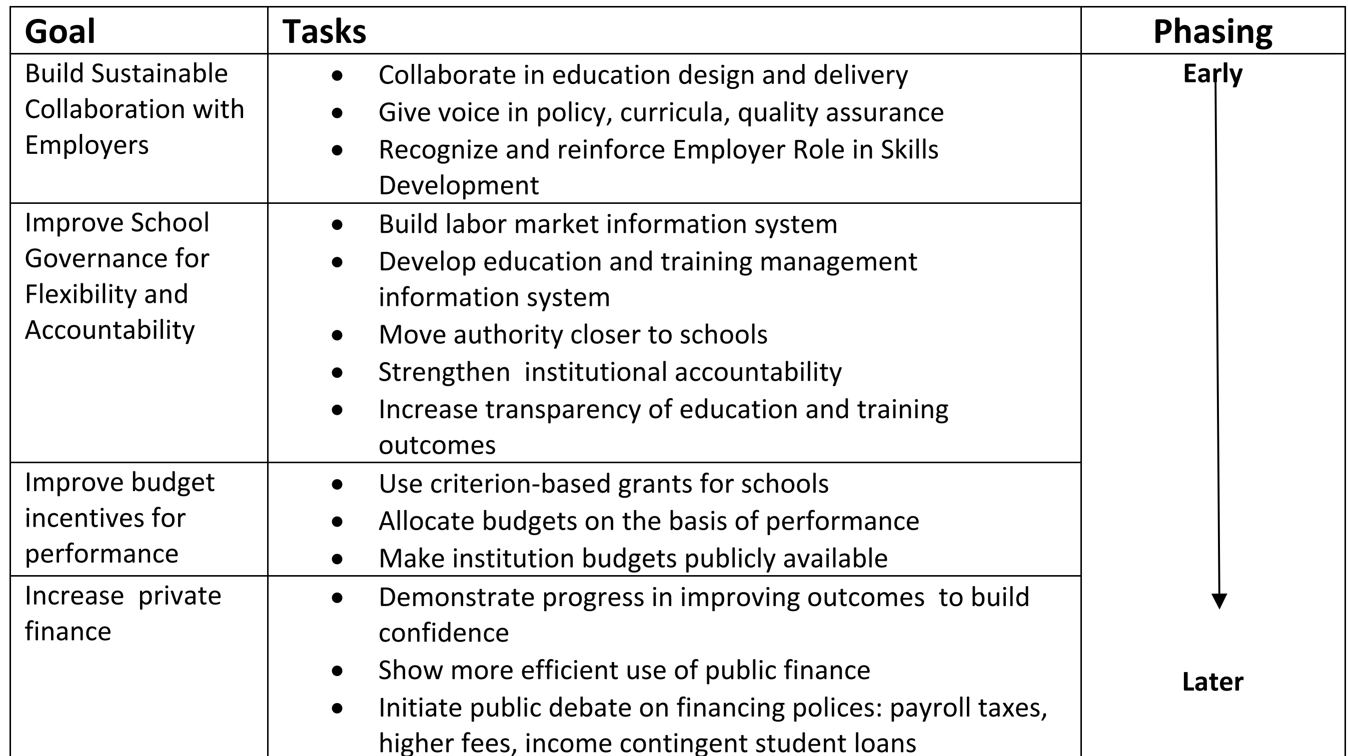
[46] Most readers will be familiar with charter schools, in which private or community management is funded on the basis of average student unit costs to run the school. This option, and perhaps even private investment, should be considered.

[47] Field, et. al (2009).

but technical and managerial expertise. Educators contribute from intimate knowledge of youth and their education and, not insignificantly, influence over the diplomas, degrees and success on examinations that are the rewards for students and families.

Table 4: Capacity Development Goals, Tasks and Phasing



Goal	Tasks	Phasing
Build Sustainable Collaboration with Employers	• Collaborate in education design and delivery • Give voice in policy, curricula, quality assurance • Recognize and reinforce Employer Role in Skills Development	**Early** ↓
Improve School Governance for Flexibility and Accountability	• Build labor market information system • Develop education and training management information system • Move authority closer to schools • Strengthen institutional accountability • Increase transparency of education and training outcomes	
Improve budget incentives for performance	• Use criterion-based grants for schools • Allocate budgets on the basis of performance • Make institution budgets publicly available	
Increase private finance	• Demonstrate progress in improving outcomes to build confidence • Show more efficient use of public finance • Initiate public debate on financing polices: payroll taxes, higher fees, income contingent student loans	**Later**

- **Capacity Development Strategy 1: Collaborate in education design and delivery.** There are many models, ranging from internships through school-to-work (STW) programs to career academies that combine general studies with courses aimed at work in a given industry, such as tourism. Learning *about* work through internships is a good experience, even for those bound for college. Learning *to* work, through STW or Career Academies (or other highly structured programs with substantial focus on work skills) has been shown to be particularly useful for students who intend to enter the work force after graduation. Employers can be helpful to career guidance in schools by providing company visits, presentations in schools, and providing company recruitment materials.

- **Capacity Development Strategy 2: Give employers voice in policy, curricula and quality assurance.** Employers will invest in these programs if they have the strong roles in governance, curricula and quality assurance that help protect their investments. Large employers are better in this role than small ones, suggesting that the Tourism and Banking industries might be good candidates in the OECS.

- **Capacity Development Strategy 3: Track (not monitor) and publicize training by employers**, perhaps through employer associations, to increase public and government awareness of the employer's role in skill development.

Improve Governance for Flexibility and Accountability. Because of the need to protect children and youth and, equally, by the value of public benefits, public education systems have traditionally been governed by law and regulation. On the positive side, public education has generally been shielded from political interference. Less positively, systems have grown rigid and resistant to change. [48] Competitive economies require flexibility. They have achieved this in varying degree in finance, in innovation and in regulation. In their skills development roles, education and training systems also find ways to be more flexible while maintaining public responsibility.[49] This is requiring changes in the way in which systems and institutions are governed.

Building the capacity to improve education governance for flexibility and accountability is critical for implementation of skills development strategies, and indeed of a joint education strategy as a whole. The costs of building this capacity are likely to be a major expenditure in the reform budget.[50] Labor market and education management information are valuable to the extent that they are used in decision-making not only by policy makers and planners, but also by school leaders, student counselors and parents. Building governance capacity is not a matter of training, though that is important, or a matter of new regulations, even though these are necessary, or even of additional funding, though that helps. Required is a broader strategy of institutional development through which the efforts of parent committees, members of governing bodies, school leaders, teachers and local and national officials to carry out reforms are supported, acknowledged and rewarded.

- **Capacity Development Strategy 4: Build Labor Market Information**. Despite several attempts and more recommendations, there is no reliable source of labor market information in the OECS. This is a long-standing constraint not only on education policy, but also economic policy and private sector development. Employers need to know how to find employees and how the wages they would pay match up against competitors. People looking for jobs need to know where the jobs are and the skills needed to be hired. Governments need to know the trends in employment and wages in different localities and the employment outcomes of different kinds of education and training. Potential investors in private education use this data to estimate how much student might be able to pay. Principals, teachers and governing bodies in autonomous schools need knowledge of job opportunities and skill requirements within Member States, if not across the OECS. Local knowledge may have been adequate in small states in the past, but free movement of labor and the prospects for joint education policies strongly suggest that an OECS labor market information system that takes advantage of improving connectivity should be a very high priority. This would be a well -justified public investment with private sector participation.

- **Capacity Development Strategy 5: Develop Education and Training Management Information.** Policies and strategies aimed at change and improvement in skills development will falter without reliable and timely information on education and training performance and costs.

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[48] As with all generalizations, there are exceptions to both assertions, particularly in unstable and corrupt States.
[49] See Section II.
[50] In the US the costs of teacher training for the introduction of computers were 3-5 times higher than the costs of the equipment (Cuban 2001).

Reports confirm that the education MIS of member states varies substantially in quality, although the newly installed EMIS system in St. Lucia is possibly serving as a model. A recent World Bank study could not identify the differences in unit costs between academic and vocational students, nor was it able to track transitions between levels of education through the data available. Gaps of this kind make rational education change difficult in very small states, risky in larger states, and virtually impossible for the OECS. Lack of data weakens policy debate and can cripple accountability for use of public (and private) funding. School principals need to know not only how their school is doing, but also how their colleagues and competitors are faring. Parents need to know this as well. Considerable assets in building an effective EMIS are the CXC and CCSLC examinations.

- **Capacity Development Strategy 6: Move authority closer to the schools.** Research using PISA examination results shows that more autonomous schools prepare students more effectively for examinations, even when student socio-economic status is taken into account. Not only private schools obtain these results, but also publicly funded or subsidized schools. To be more autonomous, schools need to be able to select, evaluate and discipline teachers; to generate and retain revenues and gifts; and to change courses and curricula. Teacher appointment and curriculum authority has been shown to be especially important to vocational programs, enabling them to be adapted more quickly to changing employment opportunities. To be autonomous schools needed wide authority on the use of budget funds. Autonomy at this level is usually accompanied by a school governance body (or bodies) that represent key stakeholders: parents, local government, employers – and sometimes students. An interim step toward school autonomy in a number of countries has been to devolve authority over teacher appointments and school performance to local governments: this is essentially the current situation for OECS Member States.

- **Capacity Development Strategy 7: Strengthen institutional accountability for quality and efficiency.** More autonomy requires greater accountability for the quality and efficiency of services. There are many models for accountability for services: curriculum standards and teacher qualifications, school accreditation evaluations, school inspectorates, and financial audits among them. Accountability mechanisms usually have governing bodies that again represent key stakeholders; when they are specific to skills development or TVET, the effective ones give comparatively equal weight to employers, unions, and government. Stakeholder governance often extends to the development and revision of standards, with approval by appropriate government authority.[51]

- **Capacity Development Strategy 8: Increase transparency of education and training outcomes.** Public awareness of the performance of education and training institutions is not only a democratic right when public funding is used, but also a form of consumer protection than can increase private investment. Public scrutiny and private investment are strong forces for good governance and institutional flexibility in meeting changing demand.

Improve Performance Incentives. For the skills development directions and strategies to work, public financing needs to be better targeted to capacity building for national training system (public and

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[51] The definition of "appropriate" matters. Until the late 1990s the Thai Parliament had to approve all curriculum changes in public education; this was not very flexible.

private) and linked to both academic and employment outcomes. Achieving this requires a shift from routine budget allocations based at least in part on measurable outcomes.

- **Capacity Development Strategy 9. Use criterion-based grants.** Funding for reforms and innovations can be channeled through grants to institutions programs that qualify based on clear criteria, such as quality of proposals, percentage of students in low income quintiles, amount of matching funds raised and proposed, and other criteria that reflect government priorities. Grants can be funded for an initial period and renewed on the basis of performance, and build in cost-saving measures.[52] St. Lucia has some experience with this approach in funding School Improvement Plans.

- **Capacity Development Strategy 10: Allocate budgets on the basis of performance.** The general principle is to make performance an integral part of budget allocation, both for full funding and for subsidies. The first step is often to require schools to apply for annual non-salary budgets showing evidence of performance. Stronger approaches have been used successfully for targeted short-term training and employment services, in which payment is linked in part to employment outcomes. In the California Employment and Training Program competitively selected providers of training for the unemployed receive up to 40 percent of the total cost of a program based on post-training employment tracked by social security numbers. Approaches such as this work well when there is a large market of training provision and individuals can be tracked systematically. In the UK and US the approach has been used to identify failing schools using standardized achievement test data, with failing schools given warnings and if failure persists having principals and teachers replaced. In many funding programs school must be accredited to be eligible for funding.

- **Capacity Development Strategy 11: Publicize budgets for institutions.** If parents, local government officials and employers are well informed on the resources (and the performance) of their secondary schools they can be more effective in governance. If they know that the school's budgets are linked to performance, they have a stronger rationale for holding the school accountable and, to the extent that they have effective voice, raising private money to improve school quality.

Increase Private Finance. Increasing private financing for skills development is more likely when public education and training institutions are publicly accountable for performance and for resources. This applies locally and nationally, and it applies to donor financing as well. When skill development systems move in the directions outlined above --- setting clear priorities based on employment opportunities, building strong partnerships with employers, governing for flexibility and accountability, and linking public finance to performance – the confidence of parents and employers increases. Confidence increases further as performance improves as does the willingness to pay higher fees and raise funds. This is the kind of confidence that upper income families have in good private schools, aided of course by tradition and the access to school leaders and governance that fee-paying parents normally have.

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[52] An example is the US E-Rate grant programs designed to connect schools to the internet. A key feauture is that schools must outsource of technical services on a competitive basis to manage costs,

- **Capacity Development Strategy 12: Demonstrate progress in improving outcomes to build confidence.** A public information program should be developed using a website, press releases, newsletters and other media to keep the public informed regarding the nature of reforms, the schedule of implementation, and the results being achieved.
- **Capacity Development Strategy 13: Show more efficient use of public finance**. Use the public information program to disseminate information about efficiency gains and budget changes as the reforms progress. Particularly important will be information about the budget implications of putting excess capacity to new uses.
- **Capacity Development Strategy 14**: **Initiate public debate on financing policies: payroll taxes, higher fees, income contingent student loans and other options.** As public confidence expands, begin debate on options for increasing private finance as an integral part of the broader education strategy. Presumably legislation would be required in the OECS assembly and involve the Council of Ministers and the OECS Authority as well as legislation bodies in the Member States.

Consult widely and systematically. Skills development systems are quite complex. As shown in Figure 17 there are many actors and inter-relationships. This is a generic systems model of an education and training system and is not specific to any country.[53]

Although it may appear complex, the model actually simplifies more complex sets of education and training system institutions, functions and relationships. Adapting the model to a specific country context will make it more complex or more simple, but is unlikely change it completely.

Even in its generic form, the model helps identify the stakeholders for a new skills development strategy. Engaging these stakeholders, or their representatives, in a meaningful dialogue about the proposed new education strategy, including its skills component, is likely to be essential to testing strategy ideas and directions for feasibility, for gaining new ideas and perspectives that can improve strategy, and by building the understanding and commitment that is essential to implementing change.

Strategy cannot be abstract, nor can it become a statement of idealized outcomes. Issues of feasibility and implementation need to be an integral part of strategy consultation and development, including both data collection and consultation with stakeholders.

The consultation process should be well-publicized, including ways to participate and reports on findings.

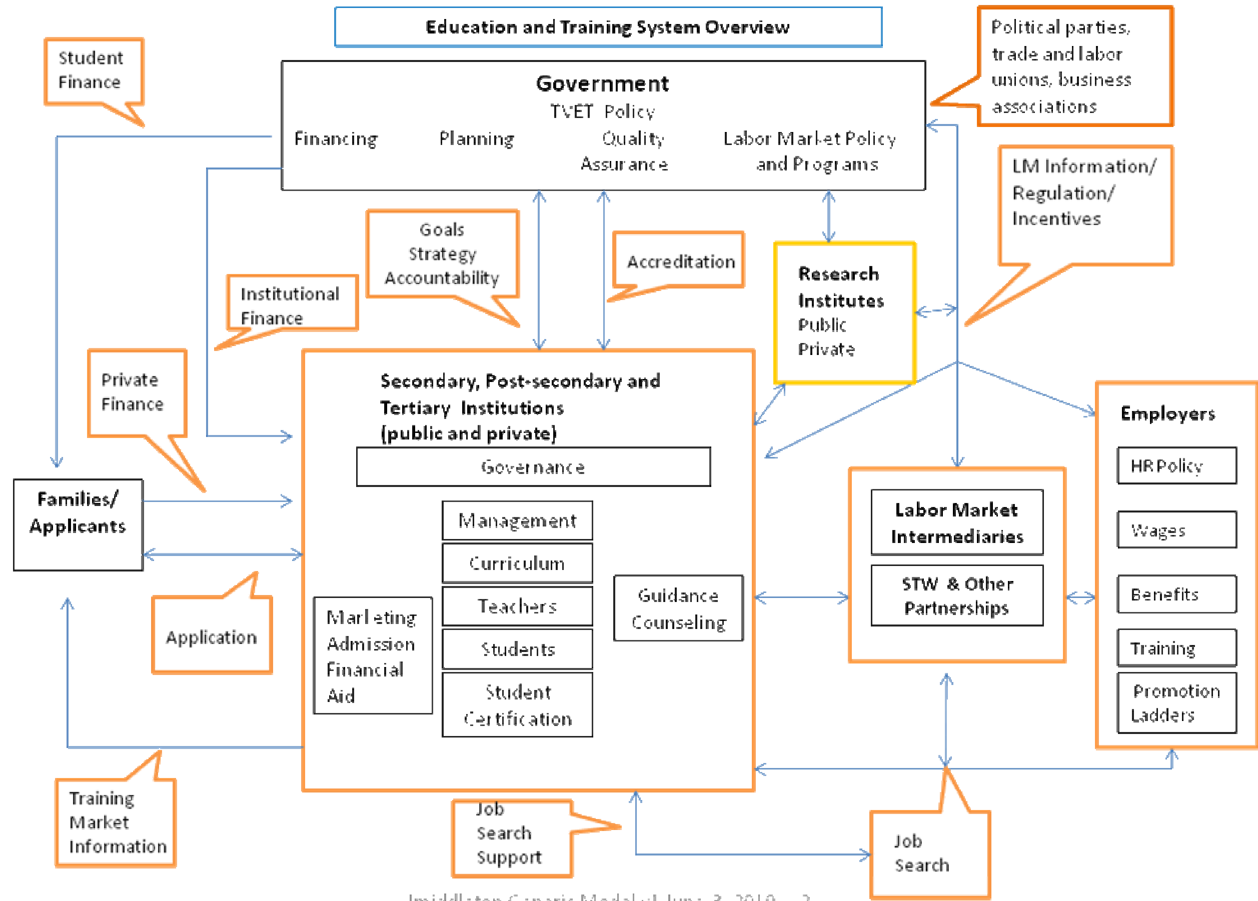
AFTERWORD

Issues, goals and strategic options are offered here as a framework for discussion and debate as the OECS Education Strategy is developed. As acknowledged, there are many gaps in data that should be addressed as the strategy development process unfolds. Critical thinking by OECS leadership buttressed by new data is what will matter most.

Worth considering would be participation in the OECD PISA program, not so much for the test scores, but for the rich research on curriculum effectiveness, pedagogy and factors in school performance.

[53] This model was originally developed for the World Bank's Latin America region for a study of skills development.

Figure 17: Generic Systems Model for Education and Training



SKILLS DEVELOPMENT STRATEGY FOR THE OECS

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