



Education in a Changing World: Flexibility, Skills, and Employability

Yidan Wang



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About the Author

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Abstract

New technologies, globalization, the information revolution, and labor market changes have affected the world economy on an unprecedented scale. As a consequence, the demand for a skilled workforce has increased, world trade and migration have intensified, and the divide between the haves and have-nots has vastly widened. While many developed countries have by now gone through a demographic transition, with declining birth rates and an increase in the aging population, low-income countries in particular will see an upswing in population growth. Between now and 2050, for example, the labor force in Africa is projected to increase by 125 percent; in Latin America, by 26 percent; and in Asia, by 22 percent. At the same time, the labor force in Europe will decline by 23 percent.

Given these circumstances, the key policy challenge is to ensure that the emerging workforce in developing countries has the skills needed to escape the cycle of poverty and take advantage of the opportunities made possible by globalization and technological change. This paper puts education under the lens of the changing demands of technology, the labor market, demography, and migration. It identifies the weaknesses in current education systems, such as restricted access, skills mismatches, and weak school-to-work linkages. It calls for making education systems more flexible and responsive to change so that they maximize human resources, equip people with updated skills, and prepare youth for the world of work. It specifically looks at the education status of four types of countries at different stages of development and growth and makes recommendations on priorities and strategies for each group.

Abbreviations and Acronyms

CCF	Career Cluster Framework, Maryland, USA
CCRC	Community College Research Center, Columbia University
CIEP	Centre International d'Études Pédagogiques, Paris
CIS	Commonwealth of Independent States
CTE	career technological/technical education
EQF	European Qualifications Framework
EU	European Union
GCC	Gulf Cooperation Council
GDP	gross domestic product
GER	gross enrollment rate
GNI	gross national income
ICT	information and communication technology
ILO	International Labour Organization
ISET	Institute of Technological Education, Tunisia
ITE	Institute of Technical Education, Singapore
ITI	Industrial Training Institute, India
KAM	Knowledge Assessment Methodology, World Bank
NGO	nongovernmental organization
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
SSC	Sector Skills Council, United Kingdom
TAFE	Technical and Further Education Program, Australia
TIMSS	Trends in International Mathematics and Science Study
TVET	Technical and Vocational Education and Training
UNDP	United Nations Development Programme
WTO	World Trade Organization

All dollar amounts are U.S. dollars unless otherwise noted.

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It used to be that natural resources, a big labor force and a dose of inspiration was all that was required for countries to succeed, economically. But not anymore. In the 21st century, our future prosperity will depend on building a Britain where people are given the opportunity and encouragement to develop their skills and abilities to the maximum and then given the support to rise as far as their talents will take them.

“World Class Skills,” Secretary of State for Innovation,
Universities, and Skills, United Kingdom, July 2007

Introduction

New technologies, globalization, and the information revolution have significantly affected the world economy, shortened the production cycle, and improved productivity. In the United States, for example, total employment in manufacturing fell by half from 1960 to 1999, while the physical output of the manufacturing sector doubled or tripled (Drucker 2001). Advanced technologies have replaced many human tasks, resulting in increased demand for “knowledge workers” and higher-level skills. Due to globalization and global and local migration, the world has become more integrated, with more mobility of workers and expanded international trade. Globalization and new technologies have allowed India, China, and other developing countries to become part of the global supply chain for manufacturing and services (Friedman 2005). Less-developed countries will need to adjust their education and learning systems to respond to changing demands for human resources and compete in the global economy.

By taking a supply-side perspective, this paper recognizes the changing context of the education sector; identifies mismatches between the demand for education and the current status of education systems; and provides policy options for adjusting education policy, structures, learning content, and organization. Specifically, the paper discusses short- and long-term strategies for countries at different stages of development and growth.

Evolving Education Trends for Development and Competitiveness

Linking education to economic development is not new. Forty years ago, “human capital theory” established the link between education, productivity, and growth. As Denison (1967, 78) points out, “Education background is a crucial determinant of the quality of labor. It conditions both the types of work an individual is able to do and his efficiency in doing them.” He states elsewhere (1962, 67) that “...additional education increases an individual’s ability to contribute to production and his earnings.” Numerous recent studies have demonstrated a positive correlation between education and economic growth: an additional year of education raises individual incomes 10 percent across countries and 20 percent in poor countries (see, for example, Psacharopoulos and Patrinos 2002). Educational quality, as measured by the cognitive skills of the population, also has a strong impact on individual earnings and economic growth (Hanushek and Wößmann 2007).

In the twenty-first century, human capital has become more valuable because knowledge has become a key resource for development and competitiveness. A well-educated and skilled population is essential for creating, sharing, disseminating, and using knowledge—itsself an enabler of the knowledge economy (WBI 2007). Recent OECD reports indicate that human capital, as measured by the educational attainment of the working-age population, has a measurable influence on economic growth (OECD 2000, 2001).

Education at all levels contributes to development and a country’s competitiveness. Basic education provides a solid foundation in reading and writing and successful entry to secondary education. Secondary education—including vocational and technical education and training—can develop specific competencies, skills, behaviors, and attitudes, together with a sense of cooperation and the social responsibility, that enable young people to participate in the knowledge economy, contribute decisively to social cohesion, and be responsible citizens. Tertiary education can impart people with the ability to innovate, disseminate, and apply knowledge that supports the knowledge economy (see World Bank 2002, 2005).

Indeed, many advanced economies have had a significant jump in productivity and economic prosperity due to strategies that expanded education at the secondary level, including vocational and technical training. Before the 1950s, education systems in most developed nations—particularly European countries (with the exception of the United States, where secondary education was initially open and nonselective)—were elitist, with less than 50 percent enrollment (World Bank 2005). The main purpose of these systems was to prepare civil servants for the government. The first wave of expansion in these countries took place in lower secondary education from roughly the 1950s to the 1960s, followed by a second wave in upper secondary education between the 1980s and the 1990s.

These two expansions are seen as closely related to then prevailing demands for new work skills, equity in education, and families' growing demand for more education (Briseid and Caillods 2004). In advanced countries, the average years of schooling of the total population aged 15 and over reached 8.86 years in 1980, 9.19 years in 1990, and 9.76 years in 2000. In developing countries, the average schooling of the same age group was 3.57 in 1980, 4.42 in 1990, and 5.13 in 2000. The difference between high- and low-income countries throughout the period 1980–2000 was about 5 years of schooling (Barro and Lee 2000).

Accompanying the movement toward mass education has been an effort to invent a much more flexible education and learning system within a framework of lifelong learning.¹ Lifelong learning, which encompasses the period from early childhood development through retirement and beyond, implies continuous learning and relearning opportunities. It is seen as crucial for a country to compete in the global economy because it equips people with the knowledge and skills that they need at any time or age. Samuelson (2006) argues that the American learning system has two big virtues that support its advanced economy: "First, it provides second chances. It tries to teach people when they are motivated to learn—which isn't always when they're in high school or starting college. Second, it's job-oriented. Community colleges provide training for local firms and offer courses to satisfy market needs."

Much recent research has focused on the links between education, the labor market, and skills development. *The World Development Report 2007: Development and the Next Generation* (World Bank 2006), for example, emphasizes that investing in young people can improve development. Education investments broaden opportunities, develop young people's capacities by recognizing them as decision-making agents, and provide effective second chances through targeted programs. A related study, *The Knowledge Economy and Education and Training in South Asia* (Riboud, Savchenko, and Tan 2007) focuses on how skills affect labor market outcomes. This study highlights the importance of upgrading skills; diminishing the gender gap; and expanding secondary and tertiary education, vocational education and training, and in-service training in order for South Asia to catch up with developed regions.

Another recent report, *Linking Education Policy to Labor Market Outcomes* (Fasih 2008), notes that the expansion of education only at the primary level will not raise earnings substantially and has not proven effective in reducing poverty. The quality of education, moreover—that is, the cognitive skills of the population, not merely school enrollment rates—is highly related to earnings and income distribution (Hanushek and Wößmann 2007).

1. Lifelong learning implies an articulation between formal education and broadened opportunities offered through formal institutions (e.g., schools, training institutions, and universities), nonformal opportunities (e.g., structured, on-the-job training), and informal learning (i.e., skills learned from family members or people in the community) (World Bank 2003).

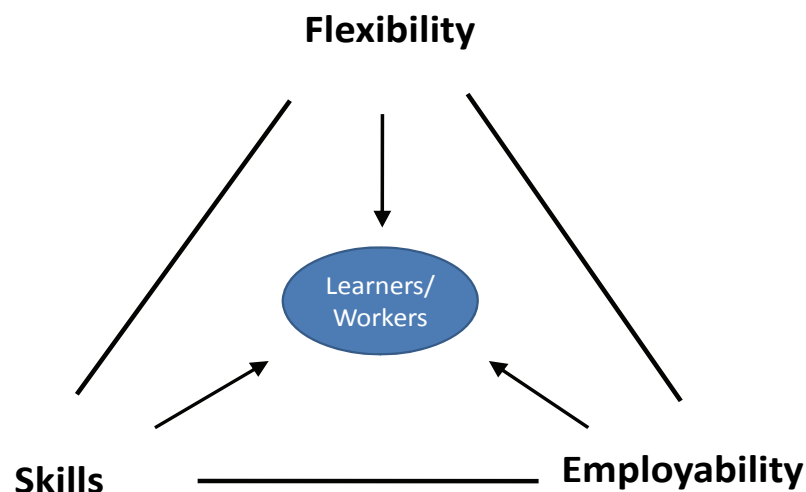
In May 2011, the World Bank launched its Education Strategy 2020. The strategy aims to support all developing countries to advance toward the goal of “Learning for All” over the next decade, using investments in people’s knowledge and skills to promote development. The document’s three key messages are: invest early, invest smartly, and invest for all. It also signals several strategic shifts: from a focus only on children who are in school to all youth, from a school-centered to a learner-centered approach; and from an emphasis on schooling inputs to schooling outcomes (World Bank, 2011).

Framework and Focus of Paper

The focus of this paper is how to maximize human development by developing people’s skills and capacities at the post–basic education level. It puts learners and/or workers’ needs at the center of the analysis and discusses how education systems can be aligned through structural change, content updates, and school linkages to meet the needs of learning for all.

Three factors are important for maximizing human resources: building a flexible education system, developing and updating needed skills, and enhancing employability (figure 1). A *flexible system* provides learners with what they need in response to changing circumstances, imparting knowledge and skills when they need them and delivering learning where it is convenient. Such a system goes beyond school-age students to cover adults who need to update their skills and knowledge, enabling all learners to maximize their capacities at all stages of life. The *skills* angle focuses on the updated, quality learning content

Figure 1. Tripartite Learning Framework



Source: Author.

needed to actively participate in the economy. The employability angle implies a linkage between education and employment, in that education does not take place in isolation from the outside world. Education prepares people for higher levels of learning, but more importantly, it orients learners and workers toward the world of work.

The three elements of the framework in figure 1 are interrelated. A flexible structure enables education systems to be responsive to changing demands for skills, such as the demand for soft skills and teamwork in today's economy. Flexibility also allows "outsiders"—that is, employers and the business sector—to be involved in curriculum development and internship opportunities. Skills development ensures that learning content is relevant to the labor market and employment. Thus, maximizing learning opportunities, providing updated skills, and ensuring an effective school-to-work transition are essential for preparing a skilled workforce.

The discussion that follows principally concerns formal education at the post-basic education level, including lower and upper secondary (including vocational and technical education and training) and lower tertiary (including two-year colleges) education. It analyzes changes in technology and labor market changes based on the existing literature and studies of education and the labor market; however, it does not discuss labor market policies.

The three sections of the paper address the following topics: (i) why education needs to change as a result of new technologies, globalization, migration, and labor market changes; (ii) the challenges and issues now facing the education sector, particularly the question of whether education systems provide sufficient learning opportunities, updated skills, and choices to maximize human capital on the labor market; and (iii) how to move forward to build flexible education systems, develop skills, and strengthen school-to-work linkages. The paper concludes with a review of its key messages.

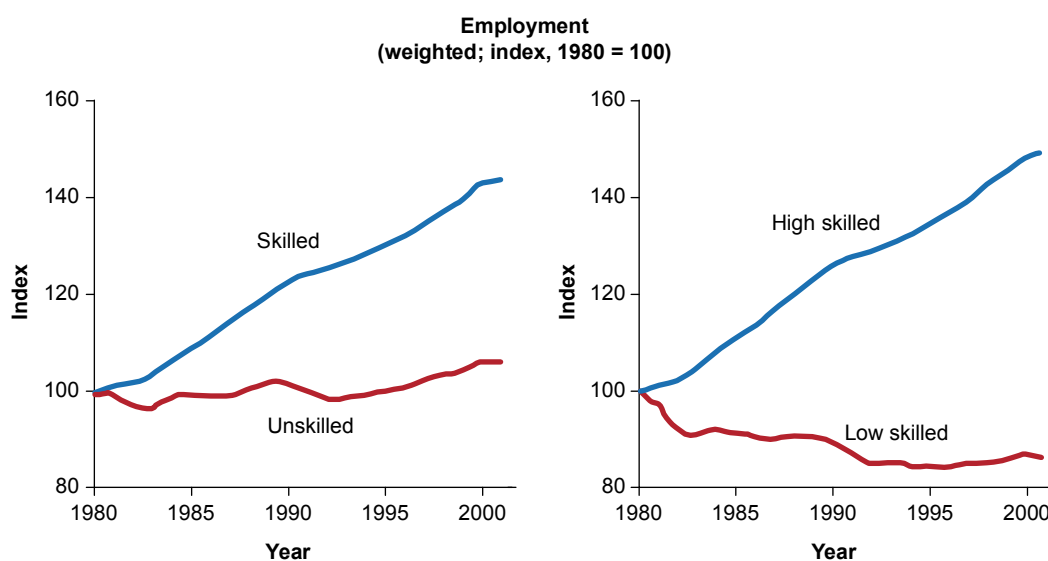
I. Why Education Needs to Reform: Understanding the Changing Context

Education prepares people for both the society of today and the future. Understanding the broader, changing context of a society is thus critical to defining its mission. The past few decades have seen dramatic changes and transformations caused by new technologies, migration, demographic trends, labor market shifts, and workplace composition. These changes have profound implications for the function and types of jobs for which education should prepare people.

New Technologies and the Changing Demand for Skills

Advances in technology have shortened production cycles and dramatically improved productivity. In developed and fast-growing economies, computers are taking on, substituting for, or complementing much of the work done by human beings in such areas as processing information and rule-based tasks, resulting in a rising demand for higher-order skills (Levy and Murnane 2004). According to the *World Economic Outlook 2007* (IMF 2007), there has been a steady increase in the demand for skilled and high-skilled workers and a decrease in the employment of unskilled and low-skilled workers in advanced economies over the period 1980 to 2000 (figure 2).

Figure 2. Demand for Skilled and Unskilled Workers, Reflected in Employment Rates, 1980–2000



Sources: Haver Analytics; International Labor Organization, Labor Statistics Database; OECD, Employment and Labour Market Statistics, National Accounts Statistics, and STAN Industrial Database; United Nations, *National Accounts Statistics* (2004); and IMF staff calculations.

Note: For the analysis by skill level, advanced economies include Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Norway, Portugal, Sweden, the United Kingdom, and the United States; weighted using series on GDP in U.S. dollars from the World Economic Outlook database.

In the United States, for example, between 1969 and 1998 there was a steady increase in demand for complex communication skills (i.e., the ability to elicit information and convey a particular interpretation of information) and expert thinking (i.e., the ability to structure a problem), while tasks requiring routine manual, routine cognitive, and nonroutine manual labor declined (Levy and Murnane 2004).

This trend can also be seen in the many emerging economies and middle-income countries where technology is a driver of the economy. In China and India, for example, technological change is not just affecting business in urban areas, but the poor in rural areas—creating more business and employment opportunities. In Africa, technology is also a driver of economic development. Mobile phones are increasingly reaching a large portion of population, offering new business opportunities and access to distant markets. In addition, there is a trend in Africa of moving upward on the value chain by developing light industries. This change from depending on agriculture means that developing countries will need more people with advanced skills than those with lower-level skills.

Trends in Migration and Development

More people are moving today than at any other point in human history. The UNDP's *Human Development Report 2009* (UNDP 2009) reveals that about 5 million people—mostly high-skilled workers—cross an international border every year to live in another country (amounting to roughly 210 million people, or 3 percent of the world's population). But massive migrations are also occurring within the borders of individual countries. About 740 million people—mostly unskilled workers—migrate each year within their own countries, with the majority migrating from rural to urban areas.

In addition, the past five decades have seen a massive increase of migrants to North America (from 6.7 percent in 1960 to 14.2 percent in 2010) and the countries of the Gulf Cooperation Council (GCC—from 4.6 percent in 1960 to 38.6 percent in 2010) as a result of both economic development and the growth of the oil industry. The majority of international migrants move to a neighboring country or countries at a similar development stage. People from poor countries are the least mobile; for example, fewer Africans have moved to developed countries than migrants from more developed countries.²

Migration is often considered beneficial to both countries of destination and origin. “Most migrants, internal and international, reap gains in the form of higher incomes, better education and health, and improved prospects for their children” (UNDP 2009, 2). For some developing countries, migrant remittances have helped reduce poverty within the country of origin. In Nepal, for example, between 1995 and 2004, the poverty headcount declined by 11 percentage points. Similarly, the share of poor people in Uganda was reduced by 11 percentage points; in Bangladesh, by 6 percentage points; and in Ghana, by 5 percentage points. Remittances also have a positive impact on the education of the second generation of family members who remain in-country. In El Salvador and Sri Lanka, for example, children of remittance recipients have lower dropout rates and their households spend more on children's private education (Ratha 2009).

² The United States, however, has the largest number of foreign students. One third of all PhDs in the sciences and engineering in the United States are now awarded to foreign-born students (Wulf 2005).

Table 1. Regional Distribution of International Migrants, 1960–2010

Region	1960			2010		
	Total migrants (millions)	Share of world migrants (%)	Share of population (%)	Total migrants (millions)	Share of world migrants (%)	Share of population (%)
World	74.1		2.7	188.0		2.8
Africa	9.2	12.4	3.2	19.3	10.2	1.9
North America	13.6	13.4	6.7	50	26.6	14.2
Latin America and Caribbean	6.2	8.3	2.8	7.5	4.0	1.3
Asia	28.5	38.4	1.7	56.6	29.6	1.4
GCC states	0.2	0.3	4.6	15.1	8.0	38.6
Europe	14.5	19.6	3.5	49.6	26.4	9.7
Oceania	2.1	2.9	13.5	6.0	3.2	16.8

Source: UNDP 2009, 30.

While migration has a positive impact on development, it also poses several challenges for developing countries. The transfer of educated and highly skilled workers from developing to developed countries raises great concerns about the former losing a large percentage of their already limited supply of skilled labor (Hujó and Piper 2007). On the other hand, the overwhelming number of internal migrants who move from rural to urban areas makes it difficult for their children to access education; moreover, these children often grow up without parents because many must leave their children behind. This situation has raised multiple challenges for national education systems in terms of (i) developing large numbers of highly skilled workers locally, (ii) turning migrant workers into skilled workers, and (iii) ensuring equal learning opportunities for migrant children at both their destination and origin locations.

Demographic Trends

From 2010 through 2050, most population growth in the world will take place in developing countries. The population of developed countries will peak in 2020, then decrease by 7 percent over the following 30 years. The population of developing countries, however—particularly those in Africa—will double. By 2050, every continent except Africa is expected to have more elderly people than children; the average age in developing countries will be 38 years and that in developed countries, 45 years (UNDP 2009).

By 2050, the working-age population is projected to increase in every region of the world except Europe, where it is projected to decrease by 23 percent. In Latin America, the workforce will increase by 26 percent and in Asia, by 22 percent. Africa will experience the most rapid increase over the 40-year period—125 percent, or six times the population growth of both Latin America and Asia.

Table 2. Working-Age Population by Region, 2010–2050

Regions	2010 (billions)	2050 (billions)	Increase/decrease (%)
North America	0.23	0.27	+16
Latin America and the Caribbean	0.39	0.49	+26
Europe	0.50	0.38	–23
Africa	0.58	1.30	+125
Asia	2.80	3.40	+22
Oceania	0.02	0.03	+31

Source: UNDP 2009.

Asia is projected to have the largest working-age population by 2050 (3.4 billion), while Africa will have the second largest (1.3 billion). These trends emphasize the importance for developing countries of training their rapidly growing young populations to become skilled workers, particularly in Africa, where education levels remains low and poverty levels, high. For other regions, the main concern will be to keep older people in the workforce longer through lifelong learning systems and continuous opportunities to sustain employment.

Labor Market Structure and Employment

The last decade witnessed a significant transition from the agriculture to service sector throughout the world. According to the International Labour Organization (ILO 2006), the world's workforce in agriculture decreased from 44.4 percent in 1995 to 40.1 percent in 2005, while in the same period, employment in the service sector increased from 34.5 to 38.9 percent; employment in the industrial sector remained unchanged.³

While the service sector grew from 1996 to 2006 in all regions, developed countries took the lead. By 2006, 71.2 percent of employment in developed economies (including the European Union) was in the service sector, compared to 53 percent in the economies of Central and Southeastern Europe, 33.5 percent in those of East Asia, 29.6 percent in those of South Asia, and 24.1 percent in those of Sub-Saharan Africa (ILO 2007a). Many jobs in the service sector—including finance, tourism, and banking—require not only specific technical skills, but also language, management, interpersonal, problem-solving, and decision-making capacities.

³ According to the International Standard Industrial Classification (ISIC) Revision 3, 1990, the service sector consists of wholesale and retail trade, restaurants and hotels, transport, storage and communications, financial intermediation, insurance, real estate, renting and business services, public administration and defense, compulsory social security, education, health and social work, and social and personal services (ILO 2007a).

Table 3. World and Regional Estimates of Total Employment by Sector, 1996 and 2006

	Employment in agriculture (%)		Employment in industry (%)		Employment in services (%)	
	1996	2006	1996	2006	1996	2006
World	41.9	36.1	21.1	21.9	37.0	42.0
Developed economies, including EU	6.2	4.2	28.5	24.7	65.3	71.2
Central and Southeastern Europe (non-EU) and CIS	27.2	20.3	28.7	25.8	44.1	53.8
East Asia	48.5	40.9	24.3	25.6	27.2	33.5
Southeast Asia and the Pacific	51.0	45.4	16.5	18.6	32.5	36
South Asia	59.7	49.4	15.2	21.0	25.1	29.6
Latin America and the Caribbean	23.1	19.6	20.7	20.8	56.1	59.6
North Africa	36.5	34.4	19.8	20.0	43.7	45.6
Sub-Saharan Africa	74.4	65.9	7.5	10.0	18.1	24.1
Middle East	21.1	18.1	25.2	25.6	53.7	56.3

Source: ILO 2007a.

Note: See "Abbreviations and Acronyms" for a key to abbreviations.

In many developing countries, the informal sector typically makes up more than half of the economy. This sector is often characterized by casual, temporary, poorly paid, and insecure jobs. In India, over 90 percent of employment is in this sector (World Bank 2008). In the early 2000s, 78.2 percent of employment in Asia overall was in the informal sector; in Latin America, the figure was 52.2 percent (Bacchetta, Ernst, and Bustamante 2009). The informal sector requires multiple skills, including entrepreneurial skills for self-employment, such as management, bookkeeping, communication, and customer relations.

Since 2008, the global economic crisis has had a significant impact on both the global economy and employment. In many countries, unemployment has reached record levels and will continue to be high for some time to come. Long-term unemployment results in serious problems for both individuals and national economies because over time, the unemployed lose their skills and are less able to participate in the world of work (Khang 2009). This situation highlights the importance of providing skills training to the unemployed in order to prepare them for a return to work.

Workplace Composition

In industrial society, the workplace was organized according to a strict division of labor, with common standards and specialized jobs. Such a system operated under a structure in which a few led and the majority followed. Today, however, the global economy and new technologies have stimulated firms to compete to provide quick customer response and offer greater flexibility, resulting in less hierarchy in the workplace and a blurred division of tasks. There are significant differences in the working modes of industrial and post-industrial societies,

which require different skill sets. Cheng (2007) observes the following changes between the two:

Industrial	Post-Industrial
Division of labor	Total solution
Individual tasks	Teamwork
Specialist duties	Integrated expertise
Administrative links	Human interactions
Credential-based jobs	On-demand, just-in-time learning
Appraisal by seniors	360 appraisal

Many people now work in small companies or in project teams at big companies. In Hong Kong SAR, China, for example, 99.3 percent of registered companies in 2005 had less than 100 members, 94 percent had less than 20, and 86 percent had fewer than 10 (Cheng 2007). In Ghana, the number of firms with less than 5 employees increased 500 percent from 1987 to 2003, while the number of firms with more than 100 employees remained constant (Fasih 2008). In small companies, people tend to have multiple tasks—a worker is expected to be designer and implementer, manager, and staff. Thus teamwork, communication, and problem-solving skills become important.

Fewer people today work for one company for their entire working lives; changing jobs is the norm. This is true in developed nations and is increasingly the trend in developing countries as well. According to the U.S. Bureau of Labor Statistics, “Individuals in the [United States] held an average of 11 jobs from age 18–44, with the majority of the jobs being held before age 27” (United States 2010, 2). In developing countries, this situation may not apply to the same degree, but it is generally true that the younger generation changes jobs more frequently than the older generation. This trend has profound implications for the education sector. First, a once-in-a-lifetime diploma is no longer sufficient, making lifelong learning a must. Secondly, continuous learning opportunities that enable people to change careers and update their skills are essential in order for individuals to thrive and contribute to economic growth.

The changes described in this section imply new demands on education systems, including the need to prepare people with higher-order skills, train migrant workers and their children, develop strategies for skills development in developing countries, focus on new types of skills (e.g., information and communication technology, business management, teamwork, problem solving, communication, and leadership), and provide lifelong learning opportunities.

II. Challenges and Issues Faced by the Education Sector

How well are education systems preparing young people for the changing demands of the labor market? Do education systems provide young people with adequate opportunities to learn relevant skills? How do they prepare young people for work in the context of ever-changing labor markets? This section looks at gaps and mismatches in the education sector in terms of education policies, regulations, curricula, and the school-to-work transition.

1. Are Current Education Systems Flexible and Responsive to Individual, Social, and Economic Needs?

Increasingly, knowledge-based economies and labor markets require all citizens—not just a few—to acquire more and better education. According to the World Bank’s Knowledge Assessment Methodology (KAM), the adult literacy rate, secondary and tertiary education enrollment rates, and quality of mathematics and science education are important benchmarks for determining a country’s readiness to make the transition to a knowledge-based economy.⁴ In 1985 in Tunisia, for example, 87 percent of new jobs required primary education and 43 percent, secondary education. By 2005, however, the demand for workers with only primary education had declined dramatically and the demand for workers with secondary education had increased to 67 percent (Ezzine 2007). Similarly in Egypt, about 40 percent of workers entering the labor market in 1980 had primary education or less, while in 2005, 70 percent of new entrants had attained secondary education or more (Assaad 2007).

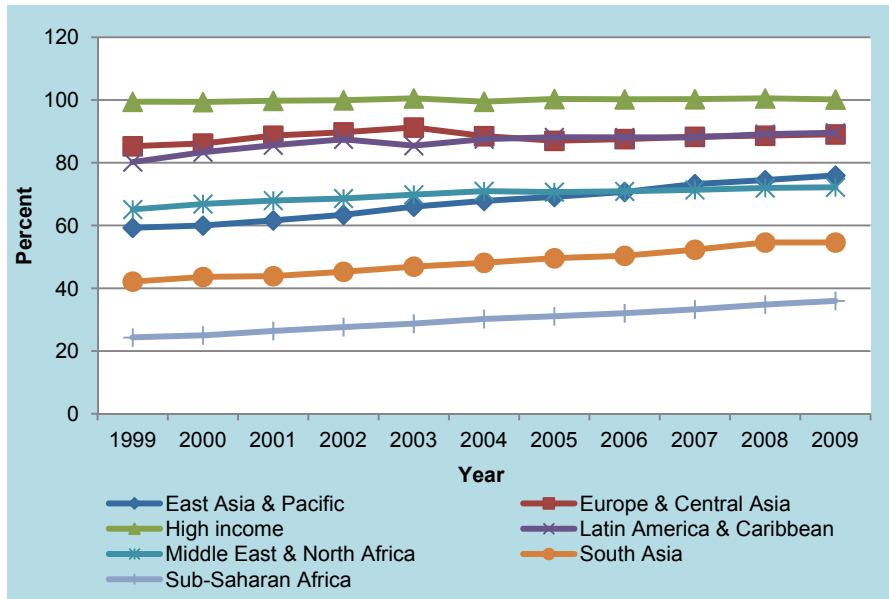
Obtaining more and better education also reaps private benefits, as education is associated with improved individual employment opportunities. In South Asia, for example, a survey in Bangladesh, India, Pakistan, and Sri Lanka (Riboud, Savchenko, and Tan 2007) indicates that groups who have attained education levels beyond primary education find employment much faster. A study in European countries similarly shows that young workers who have not completed upper secondary education have higher unemployment rates than do school completers (Ryan 2001).

It is precisely at this level that developing countries lag behind. While the gross enrollment rate, or GER, for secondary education in high-income countries has reached more than 100 percent, developing countries need to strive to achieve this goal. The Latin America and Caribbean region has made the biggest jump in GER at the secondary level since mid-1990s, moving from 55 percent in

⁴ KAM is an interactive benchmarking tool intended to help countries identify the challenges and opportunities of making the transition to a knowledge-based economy. The tool consists of 109 structural and qualitative variables for 146 countries that measure their performance on the four pillars of the Knowledge Economy: economic incentive and institutional regime, education; innovation, and information and communications technologies. More details are at www.worldbank.org/kam.

1995 to 90 percent in 2009; followed by East Asia and the Pacific region, which moved from a GER of 59 percent in 1999 to 76 percent in 2009. And in Sub-Saharan Africa, the GER for secondary education increased from 24 percent in 1999 to 36 percent in 2009. However, the gap between developed and developing countries remains large, with the difference in secondary enrollment rates between high-income countries and African countries as big as 64 percent.

Figure 3. Gross Enrollment Rates in Secondary Education by Region, 1999–2009



Source: EdStats.

The problem of low secondary enrollment in developing nations is not attributable solely to insufficient funding, but also to deficient education systems whose rules, regulations, and restrictions prevent young people from accessing education. In many cases, education systems are selective rather than inclusive in terms of learning opportunities at the secondary level. There are separate tracks for general and vocational education and once-in-a-lifetime chances without remedial opportunities. From a provider’s perspective, these rules facilitate easy administration and management. But from a learner’s perspective, they are dysfunctional for both individuals and economic development.

Selective versus inclusive education systems

Education used to be the privilege of elites and the ablest students; it was also the prerequisite for high-level positions. Not anymore. Today, a quality education is considered a basic human right to which everyone is entitled. It is also an important determinant of a person’s employment and quality of life. However, in many parts of the world, educational opportunities continue to be rigid, restricted by education ministry rules regarding when, where, and how people may learn.

In many developing countries, education systems lack the flexibility to fulfill the needs of learners. If a student becomes older than the regular age for a given level of schooling due to illness, financial difficulties, or the need to take care of family members, he or she will lose learning opportunities forever, regardless of his or her capability and willingness to learn. Due to system rigidity, children of migrant workers often encounter difficulties in obtaining access to schooling because they are not considered “residents” of the urban school district to which their parents migrate, as has been the recent case in most parts of China (Wang 2005). Similarly, physically disabled children are denied learning opportunities simply because they do not meet the criterion for entering schools and colleges, or because school facilities do not allow them to participate in school activities.

Even in East European and Central Asian countries, where enrollment is high at all levels of education; opportunities for learning later in life are extremely limited, leaving people educated under planned economies without the skills to sustain employment. In addition, few countries in the region recognize that their education systems are failing a large number of students due to their tradition of sorting and streamlining students (Sondergaard and Murthi 2012).

Schools in many countries offer classes meant only for young, full-time students, not adult learners and continuing students. Such classes are offered only during the daytime, excluding those who have to work to support their families. In addition, school examinations are not used to identify students who need academic help, but to determine how far a person can go along the education ladder. For example, a student may be talented in the social sciences, but if he or she cannot pass a mathematics examination, he or she will lose the chance to enter university and become, for example, a journalist.

Nor are education opportunities equally available to poor students and girls. In Egypt, poor students are excluded from access to education and quality learning because schools, seats, desks, and sanitary facilities are often not available in poor areas. For example, about one-quarter of girls living in Rural Upper Egypt, a poor region of the country, have no access to primary education (Assaad and Barsoum 2007). Similarly, 52 percent of boys and only 33 percent of girls are enrolled in secondary school in South Asia. In the Middle East and North Africa, 55 percent of girls attend secondary schools, compared to 64 percent of boys (World Bank 2005). This exclusion of poor children and girls not only has a negative impact on the economy of individual developing countries, it also impedes poverty reduction.

General versus vocational education

As noted earlier, secondary education in many developing countries tends to be selective. Students are sorted into general and vocational tracks either through examinations or teacher recommendations. General education at this level

prepares students for a higher level of learning, while vocational education teaches students skills for specific occupations.

Until recently, many education systems (with the exception of Germany) favored academic study over vocational skills development. Academic standards were thus the only way to determine “good” and “poor” students. Students who were academically able were selected for general education, leaving the rest to follow a vocational education track or drop out of school completely. In some cases, young peoples’ futures were decided as early as 11 to 13 years of age, when they were tracked toward further education or the world of work. This early determination of young people’s futures not only neglected the fact that people have different talents and may develop an interest in learning later in their school years, it assumed that a person’s success meant only academic success. Students who score poorly in academic programs, however, may be outstanding technical and vocational education and training (TVET) students and later become successful people.

Vocational education, moreover, tends to be a dead end in many countries. Once a student enters the vocational track, he or she may lose the opportunity for any further education, regardless of his or her academic improvement or motivation to learn. In addition, vocational education is often managed by education authorities without the involvement of either employers or qualified teachers with strong technical skills. As a result, it may not prepare young people with the latest skills required by industries; it may also use obsolete content and equipment. A second-class image of TVET also persists, which makes for a vicious cycle: TVET cannot attract good students, yet without good students, the quality of TVET and the workforce cannot be improved.

First-chance education versus second-chance learning opportunities

Many education systems in developing countries favor a category of student who possesses a combination of characteristics, including early maturity, academic excellence, a sense of direction, and a stable family. In such countries, educational opportunities are often rare or do not exist for students who have economic and other disadvantages, married early, went down an unfavorable path, or are unmotivated to learn during their early school years. Many education systems also continue to be built on rote memory and a theoretical curriculum, both of which are geared for examinations and of limited relevance to the workplace, causing high dropout and failure rates among secondary students (World Bank 2005).

In today’s competitive world, where knowledge and skills are critical for building a strong economy, missed opportunities to acquire skills and engage in community and society are extremely costly (World Bank 2006). Not only do school dropouts represent wasted human resources, they also represent missed opportunities for a change of career and thus minimize the human potential for development. It is true that first-chance, formal education has produced many

successful leaders and skilled workers in many countries. However, second-chance learning opportunities or training that allow people to change careers have enabled people to become successful in new careers, which also benefits an economy.

Formal versus nonformal education

In many developing countries, education is overly formal. When education or training is provided, it tends to mean school buildings, degrees, diplomas, years of study, and a full-time teaching staff. This type of learning is not only costly and time consuming, it is also slow to respond to changes in learners' needs.

Today, education is undertaking multiple tasks: preparing citizens for further education, immediate employment, future updating of their skills, and changing jobs. Rapid changes in technology and the labor market make skills obsolete, creating massive demand for short-term skills training and retraining programs. In the current labor market, where job turnover is frequent, changing professions and careers is common. More short-term and part-time training is thus vital for individual needs and national economies.

The large number of internal migrants in developing countries who move from rural to urban areas highlights the need to offer learning opportunities beyond traditional education and skills training. In China, for example, more than 200 million people have migrated from rural to urban areas and are now working without much training. Although some nonformal training programs are available to such people, including apprenticeships and other short-term training, these programs are not easily accessible. In addition, they are often organized by private institutions and not recognized by the education ministry. A more balanced education system that combines formal and nonformal education is necessary to meet the need for continuous learning.

2. Are Education Systems Preparing People with Relevant Competencies and Skills?

Education is supposed to deliver the competencies and skills that enable people to participate in society and live successful lives. However, the competencies and skills in demand change over time. Some 700 years ago, a Chinese scholar could distinguish himself in calligraphy, archery, music, poetry, horsemanship, participation in rituals, and mastery of important texts. At the same time, European scholars could distinguish themselves in grammar, rhetoric, logic, music, geometry, astronomy, and arithmetic, and were able to memorize verbatim (Gardner 2006). During the 100 years of industrial society in the nineteenth and twentieth centuries, successful individuals were expected to master literacy, numeracy, and scientific skills, as well as apply these skills to mass production. While these latter competencies and skills are still necessary, they are insufficient for the economic needs of the twenty-first century.

Emerging competencies and skills

The twenty-first century was ushered in by a dramatic information and technological revolution. As a result, people are more connected than ever, a circumstance that offers additional opportunities for business development and economic growth. The abilities to access information, communicate across languages, and utilize and create new technologies are critical to productivity. Thus information and communication technology (ICT) skills—that is, the ability to use technology as a tool to access, research, and organize information—are critical in today's world.

Language as a means of communication and trade receives more attention in this century. India, for example, has become a world leader in ICT due to the English-language proficiency of its citizens and their ability to develop new technologies. A survey in India found out that "...being fluent in English (compared to not speaking any English) increases hourly wages of men by 34 percent.... Being able to speak a little English significantly increases male hourly wages 13 percent.... More experienced and educated workers receive higher returns to English-language skills" (Azam, Chin, and Prakash 2010, 1 and 21). Those who do not complete secondary schooling will not see a wage increase due to deficient English-language skills.

In order to promote international trade and diplomacy, more people study foreign languages, including languages that were not popular in the previous century, such as Arabic, Japanese, and Chinese. In addition, entrepreneurial skills are important not only for people who engage in the informal sector, but also for those who want to start their own businesses.

Science, mathematics, and engineering skills continue to matter. Research indicates that in countries with more engineering students, the economy grows faster than in countries with more lawyers (Hanushek and Wößmann 2007). The proportion of students with proficiency in science is also an important indicator of how well citizens participate in society and the labor market (OECD 2007).

There is an increasing demand for higher-order skills. Although there is no agreed definition of these skills, they are generally described as the ability to apply knowledge and use know-how to complete tasks and solve problems (Sondergaard and Murthi 2012). In the past four decades, the United States has witnessed a dramatic increase in demand for such higher-order skills as complex communication and expert thinking, while the demand for routine labor and manual labor has declined (Levy and Murnane 2004). This trend is not true only in the most developed countries. A World Bank report (Sondergaard and Murthi 2012) notes an increasing demand for high-skilled workers in Eastern Europe and Central Asia in light of a clear shift in demand for professional skills, such as managers, professionals, and skilled workers, while the demand for less skilled workers has deteriorated.

Clearly, the labor market requires more and different skills of workers today than it did decades ago. As noted earlier, employers are looking for individuals

who have a combination of technical and “soft skills,” including teamwork, leadership, and communication. This case holds across international borders, in developed and developing nations. In the Philippines, for example, employers rank highly such core skills as problem solving, creative thinking, the ability to work independently, communication, negotiation, and leadership (di Gropello 2010).

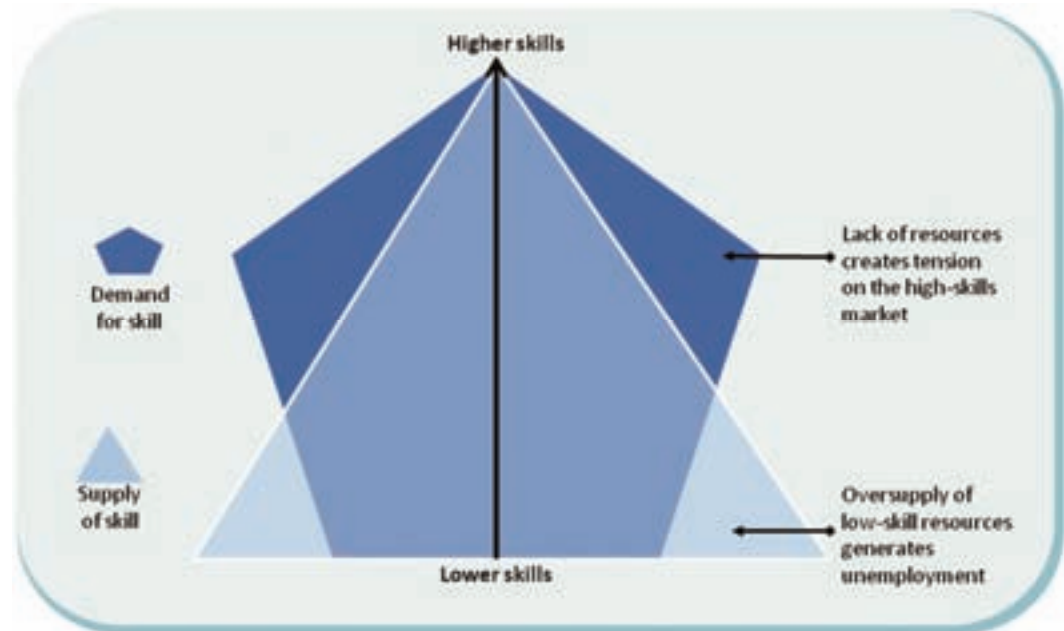
Box 1. Employers Demand “Soft Skills”

In countries as diverse as France, Bangladesh, and the United Arab Emirates, job descriptions demonstrate that employers are demanding skills in leadership, teamwork, and communication. In France, a job posting noted that a person’s energy, involvement, and personality are what matter (*Liberation* 2007). In Bangladesh, the requirements for a field maintenance manager included “[e]xcellent communication and presentation skills, highly developed leadership skills to be business manager, relationship builder, innovator, and competence developer” (*Daily Star* 2007). In the United Arab Emirates, a specialist in the automobile industry is required to have “excellent interpersonal skills, with the capacity to influence across the organization ... a demonstrated commitment to teamwork and knowledge sharing, with experience working with multidisciplinary teams” (*Gulf News* 2007).

Mismatches between supply and demand

The demand for new and more skills is not always met. In fact, the world is witnessing a huge mismatch between the supply of and demand for skills (figure 4).

Figure 4. Disconnect between the Demand for and Supply of Skills



Source: Manpower Inc. 2010b, 3.

In 2010, for example, Manpower Inc. surveyed 35,000 employers in 36 countries and territories to determine the impact of this shortage on the local labor market. The survey found that 31 percent of employers worldwide are having difficulty filling positions due to a lack of suitable available talent. The top five jobs that employers have most difficulty in filling are, ranked in order: (i) skilled trades, (ii) sales representatives, (iii) technicians, (iv) engineers, and (v) accounting and finance staff (Manpower 2010).

There is a mismatch between the demand for high-level skills and the oversupply of low-level skills. It is interesting to note that this situation coexists in almost all countries worldwide. According to the U.S. Bureau of Labor Statistics in August 2010, the unemployment rate in the United States was 9.5 percent, with 15 million people looking for jobs.⁵ However, according to Manpower Inc. (2010a), three million jobs remained unfilled in the country.

The oversupply of certain types of workers is indicative of an education system that lacks relevance and quality and has thus failed to respond to the changing demand for skills in the labor market (di Groppello 2010; Whitehouse 2010). In the case of the East Caribbean states, where the service sector is an important part of the economy, about three-fourths of new job openings in 2006 were in tourism. However, firms have difficulties in finding employees that possess specific skills in this sector, such as chefs and managers, which results in the hiring of foreign experts (World Bank 2007b). In the Philippines, companies in the manufacturing and service sectors encounter difficulties in finding workers with the appropriate skills to fill vacancies as directors and managers, as well as professional and administrative positions (di Groppello 2010).

Many education systems are still operating under the influence of old traditions or colonial influence, in isolation from real market conditions. For example, curricula in Mozambique developed 20 years ago are overly geared to the needs of a centrally planned economy and employment in large state-owned enterprises. TVET in most French-speaking African countries, moreover, follows the French model of the 1960s, which features excessive school-based curricula and lacks the flexibility to respond to market needs. Such a model has disappeared in France itself, but is still visible in Africa (Johanson and Adams 2004).

Similarly in Egypt, the education system still prepares students for jobs in state-owned enterprises and bureaucracies, while the demand for workers has shifted to the private sector. The public sector in Egypt is characterized by state-owned enterprises, which used to play a major role in absorbing new entrants to the job market. However, the percentage of employment in the public sector decreased sharply from 1975 to 2006. For technical secondary graduates, the share of public sector jobs fell from 54 percent in the mid-1970s to 5 percent at the beginning of the new century. On the other hand, the proportion of these

⁵ See its website at www.bls.gov (accessed August 2010).

graduates employed in the private sector increased from one-half to two-thirds, with informal private employment representing 56 percent of all employment among males and 42 percent among females (Amer 2007).

Skills requirements for the formal and informal sectors in Egypt differ in that the informal sector requires entrepreneurship and multiple skills. However, few TVET institutions provide the skills required for informal sector employment. This mismatch in supply and demand translates into limited opportunities for young Egyptians to participate fully in the economy.

India and China currently represent 40 percent of the world's supply of labor. However, the labor market is sending a strong message that education systems based on rote memorization that do not develop soft skills are not delivering relevant, marketable skills. In China, among 600,000 university-trained engineers each year, fewer than 1 in 10 are assessed as employable by multinational corporations, according to *The Financial Times* (McGregor 2006). Similarly, out of 3 million students who graduate from Indian universities every year, only 25 percent of engineering graduates and 10–15 percent of general college graduates are considered suitable for direct employment in the offshore information technology and business process outsourcing industries.

Defining skills and competencies for the twenty-first century

Growing attention has been devoted to developing the competencies and skills needed for the twenty-first century. The Organisation for Economic Co-operation and Development (OECD), for example, identifies a number of key competencies needed for a successful life and a well-functioning society (table 4).

Table 4. OECD's Definition and Selection of Competencies

Category	Rationale	Needed competencies
1. Using tools interactively	<ul style="list-style-type: none"> • Keep up-to-date with technologies • Adapt tools to own purposes • Conduct active dialogue with the world 	<ul style="list-style-type: none"> • Use language, symbols, and texts interactively • Use knowledge and information interactively • Use technologies interactively
2. Interacting in heterogeneous group	<ul style="list-style-type: none"> • Deal with diversity in pluralistic societies • Importance of empathy • Importance of social capital 	<ul style="list-style-type: none"> • Relate well to others • Cooperate, work in teams • Manage and resolve conflicts
3. Acting autonomously	<ul style="list-style-type: none"> • Realize one's identity and set goals in a complex world • Exercise rights and take responsibilities • Understand one's environment and how it functions 	<ul style="list-style-type: none"> • Act within the bigger picture • Form and conduct life plans and personal projects • Defend and assert rights, interests, limits, and needs

Source: OECD 2005.

The International Labour Organization (ILO) proposes the concept of “portability of skills.” The idea is that skills should be transferable between jobs and easily recognized by employers. The ILO defines a broad body of knowledge, skills, and attitudes that enable individuals to access jobs and adjust to the changing labor market, grouped into the following two categories (ILO 2007b):

I. *Core skills*

- a. **Cognitive/problem solving:** the ability to analyze and solve technical and/or business-related problems effectively, using high-level thinking skills, and by applying methodologies
- b. **Social:** the ability to interrelate with others, work in teams, motivate and demonstrate leadership, and manage client relations
- c. **Communication:** the ability to read, write, and handle information
- d. **Personal behavioral/ethical:** appropriate personal and professional attitudes and values, the ability to make sound judgments and take decisions
- e. **Learning:** the ability to acquire new knowledge, learn from experience, and be open to innovation

II. *Vocational/technical skills*

1. Possession of appropriate, technical, vocational and/or business knowledge, as well as the ability to apply this knowledge in practice

Manpower Inc., on the other hand, identifies four categories of “teachable fit” skills (table 5), a framework that predicts whether a candidate’s skills gaps can be filled and their capacities developed. The four categories are (fixed) knowledge, skills (including hard and soft skills), values and mindset, and personality and intelligence. Capabilities are considered flexible, in that each profession has its own job-specific requirements. Manpower notes that most knowledge and skills are not only important, but also highly “teachable.” Table 5 shows an example of a software engineer.

The challenge that remains is how to teach these skills, particularly the “soft skills” of communication, creativity, leadership, teamwork, the ability to learn, values, and ethics. There is a discrepancy between the current curriculum and soft skills development in the education systems of most developing countries. Schools are organized according to disciplines, while the labor market demands not only subject-area skills, but also soft skills for all professions and/or occupations (Cheng 2007). The way in which many school curricula are organized does not, however, facilitate the development of these skills. Teachers, for example, often focus on examinations, while students compete for higher scores. Schools, teachers, and students are all evaluated by how well they perform on hard, rather than soft, skills. To develop soft skills, the current

examination system and pedagogy must change to reflect the expectations of teamwork, leadership, and communication.

Table 5. Manpower Inc.’s “Teachable Fit Framework” for a Software Engineer

Category	Capabilities	Notes	Important? 1 (low) – 5 (high)	Teachable? 1 (low) – 5 (high)
Knowledge Business or academic disciplines	Computer systems	Computer science, engineering, or math degree/experience required	5	1
	Engineering principles	Takes lots of practice if not schooled	5	3
	Engineering technology	Learn as you go	4	4
Skills Demonstrated aptitudes and practices, both “hard” and “soft”	Technical design	Can earn a lot from existing configurations	5	3
	Systems analysis/ complex problem solving	Takes lots of practice to develop	5	2
	Diagnosis/ testing/ troubleshooting	Methods can be learned quickly, but they don’t cover all cases	5	4
	Active listening/ collaboration	Need to work with customers, vendors, and colleagues	4	3
	Programming	Includes operating systems; teachable, but some experience is essential	4	5
	Documentation	Precision needed here as well	3	4
	Values and mindset Attitudes that people bring to jobs and jobs need in people	Likes to build		4
	Likes to learn		4	2
Personality and intelligence Basic character and mental traits	Systematic thinking/ pattern recognition		5	2
	Deductive reasoning		5	2
	Inductive reasoning		5	1
	Curiosity		4	1

Source: Manpower 2010b, 9.

International assessments

It is important to note that international assessments, such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS), have become important benchmarks against which countries can measure their progress in preparing their young people for the global economy. PISA claims that it assesses students' skills and competencies to fully participate in and contribute to a successful modern society. TIMSS, on the other hand, measures students' achievements in mathematics and science in school. Yet neither of these assessments assess important skills that are critical to success in the contemporary global economy, namely, communication, leadership, and teamwork.

International assessments have a powerful impact on public policy, especially regarding what to teach and measure. Due to their high scores on international assessments, Finland, the Republic of Korea, and Singapore have become models. As a result, many countries are trying to imitate their education systems, including their curricula, teaching pedagogies, and educational structure. While such assessments are important indicators of student performance, one must not associate assessment scores alone with the success of an education system because such scores are only one indicator of educational achievement. Many other factors contribute to high scores, including a country's culture, the value of education, parental participation in a student's education, and traditions—none of which can be easily replicated.

3. Are Education Systems Preparing Young People for the School-to-Work Transition?

Young people may pursue secondary, vocational, or tertiary education, but education itself is not the ultimate goal. Good education should impart relevant knowledge and skills so that young people can participate in the world of work and society effectively. Concern over the school-to-work transition is a recent phenomenon. It is associated with a high unemployment rate and a long waiting time to find a first job among young people, as well as changes and uncertainties in the labor market.

Evolving trends in education planning

Forty years ago—more recently in many parts of the world—the school-to-work transition was very much a state responsibility. In the former Soviet Union, China, and other transitional economies, the national government planned education based on demographic data and the predicted occupational composition of various industries. These predictions were based on numbers of people who needed to be trained in specific areas and/or majors, such as electronic engineers, mechanical engineers, and teachers. At graduation, the state allocated jobs for students in specific institutions based on what they were supposed to have learned at school.

In the 1960s, the manpower planning approach was widely advocated in many parts of the world—including in developed and developing countries—in order to avoid worker shortages and thus expand economic growth. As one study observed, “Planners have sought to identify future manpower requirements for skilled manpower and to design the education systems so as to produce a labor force with the necessary skills and technical or professional knowledge” (Psacharopoulos and Woodhall 1985, 72). The manpower approach assumes that the labor market has little flexibility and that economic and technological structures are stable, so the right number and category of manpower produced by an education system will achieve productivity and economic growth.

In today’s economy, however, economic, organizational, and technological structures are changing dramatically. These transformations result in permanent changes within companies, from downsizing, outsourcing abroad, and mergers to shifting to other products, which in turn raises expectations of the labor force. The marketplace is no longer driven by the supply side only, but by the labor market and employers, who create demand, such as the case of Apple Inc. Thus, trying to forecast human resources for specific trades or jobs is increasingly difficult, even in countries with a tradition of state control.

While it may still be necessary to do educational planning and possible to predict the number of physicians needed based on every thousand people, or predict the numbers of teachers required in a school district based on demographic data, it is more difficult to project the number of workers needed in the engineering and communication sectors and what students should master in three to five years of study. A person’s employability is now dependent on multiple factors, including his or her educational qualifications, work experience, information about employment, and appropriate guidance, as well as students’ willingness to take a job and relevant labor market conditions.

Educational attainment, expectations, and (un)employment

Educational attainment is seen as a key determinant of employment. Higher levels of educational attainment lead to better employment opportunities, if jobs are available. Those with less education tend to experience higher unemployment rates. Employment options for poor education achievers, moreover, have deteriorated over time. Less educated and female workers are more vulnerable to unemployment in developing countries. In South Asia, for example, females have less employment opportunities than do males.

Yet unemployment persists within educated populations. First-time job seekers, for example, tend to have a longer waiting time for employment than do other workers. Globally, university graduates or those from better-off families tend to experience a longer period of waiting for a job after graduation than do workers from poor economic backgrounds due to higher job expectations and the ability to afford unemployment.

Many college graduates, such as those in China, used to be guaranteed jobs in the public sector and have high expectations of employment security and compensation. As the number of college students has increased rapidly in China over the past five years, however, the public sector has become overstaffed. Yet the expectations remain, leading to a high unemployment rate among university students. Similarly, unemployment is high among graduates of colleges and upper secondary schools in Egypt because they prefer to obtain long-term jobs in the public sector rather than finding jobs in the private sector. In developed countries, youth inactivity is often high for reasons that may be related neither to education nor the labor market, but to individual choice. For example, in the Netherlands and Sweden, a large percentage of youth “unemployment” or inactivity is due to travel or leisure (Ryan 2001).

Apprenticeship and work experience

Apprenticeship and work experience are the most recognized models for bridging the transition from school to work. Apprenticeships provide students practical work experience and build employers’ confidence in potential workers. In many countries, such as Germany, Sweden, Norway, and the Netherlands, work experience has been reinforced as part of secondary education programs (Adams 2007). Among these models, Germany’s “dual-system” model is among the most popular in the world.

To vocationalize or not to vocationalize

According to Ryan (2001), there are three perspectives on general and vocational education. Educators advocate less separation between general and vocational curricula, arguing that vocational students should not focus on occupational training. They also argue that general education students can also benefit from applying theories in practice. Vocationalists advocate practical work experience so that students become more motivated and understand the workplace better. Economists, on the other hand, advocate less vocational education due to the absence of more general pay gains and the high cost of this type of education.

Comparisons of the employment outcomes of general and vocational education students are mixed. In France, students attending a two-year vocational program at the lycée level earn 21 percent more than students who pursue equivalent academic studies, while in the United States, graduates of vocational education programs earn 10 percent less than those who pursue an academic track (Ryan 2001).

Since TVET and general secondary education share the same pool of students, determining the appropriate proportion of each type of education remains a prime concern of policy makers and educators. Adams (2007) notes that most studies of TVET—which focus on short-term employment and earning outcomes without the benefit of longitudinal data—do not test the adaptability of the two curricula over the long term. The failure of TVET to produce positive

outcomes may be attributed to the design and implementation of a program. Although countries with slow growth and a small modern sector tend to have low demand for TVET, countries experiencing rapid growth and labor shortages in the service and modern sectors are more likely to employ TVET graduates, as is the case in China and India.

Box 2. Germany's Dual-System Model

Germany's "dual system," or apprenticeship, model of vocational and technical education was established in the 1960s. It has received international attention due to the high participation rate of secondary students in the model, which prepares two-thirds of German youth for the labor market, resulting in a low unemployment rate. The "dual system" provides simultaneous training at enterprises (4–5 days per week) and vocational schools (1–2 days per week). The model is characterized by a state-controlled market in which the government sets the guidelines for cooperation with employers, who provide training and employment. Company training is provided by a single main employer. At the same time, students take general and trade-specific courses at vocational schools. After graduation, students go directly to the enterprise where they received training, providing a smooth transition to employment.

The dual system is, however, facing a modernization crisis. The main challenge is that the training places offered by employers are decreasing. The unwillingness of employers to provide these places is associated with a combination of factors, including the high cost of training, the nonresponsiveness of training to labor market conditions, and increased foreign investment in Germany. Central to the issue of decreased training places is that training is proving unable to meet the high standards and deliver the comprehensive skills required by the modern workplace. The lack of flexibility and responsiveness of the system are seen as the main obstacles to meeting the needs of both firms and trainees for individualized training pathways (Ertl and Sloane 2004b). As a result, employers prefer to recruit employees from outside the dual system, considering it a burden to finance such training (Deissinger and Hellwig 2005). Moreover, with increased numbers of foreign-owned companies in Germany, the traditional social responsibilities assumed by German companies to train youth and provide them jobs are breaking down, resulting in reduced numbers of apprenticeships.

Sources: Ertl and Sloane 2004b; Deissinger and Hellwig 2005.

Given the relevance of TVET to the labor market, efforts have been made to vocationalize secondary education in order to improve its economic relevance. However, a recent study (Lauglo and Mclean 2005) which reviewed 25 years of experience of the vocationalization of secondary education in Botswana, Ghana, and Kenya concluded that the relatively light weight of vocational training in general secondary schools does not give a student an advantage in the labor market, as it provides neither occupational skills nor particular subject knowledge.

Another current approach to TVET is to delay specialization until after general secondary education. This approach emphasizes general skills education at the secondary level, leaving occupational skills education to on-the-job training provided by employers. Such a model allows students to make decisions when they are mature and better informed about their options (World Bank 2005).

Career information, counseling, and guidance

As the labor market changes rapidly and new job opportunities open up, new systems need to be developed to help students find employment. However, in most developing countries a modern information system does not exist or is limited, so students still use traditional ways of finding jobs. In Syria, for example, 90 percent of students still rely on family, friends, and social networks to find jobs; the same situation holds in Morocco (Blomquist 2007). In Egypt, new jobseekers have a significant lack of access to information regarding the opportunities and skills in demand. Low-income young workers are particularly vulnerable to this problem due to limited guidance from family members (Assaad and Barsoum 2007).

A study that evaluates the impact of career guidance within the context of lifelong learning in 14 OECD countries indicates that even in these countries, such programs have been limited in scope. The potential effectiveness of such programs can be determined at the individual, organizational, and societal level. Among the 40 programs analyzed for the study, 90 percent reported positive results. Among them, individual guidance had the biggest effect; with group counseling and classroom intervention the second most effective program. Counseling-free interventions had the smallest effect; and computer-delivered interventions were found most cost effective (OECD 2004).

Regarding public policy on career development, a study in seven developing and middle-income countries conducted by the World Bank (Watts and Fretwell 2004) focused on programs that helped youth make informed occupational education and training choices. The study reviewed cases in Chile, the Philippines, Poland, Romania, South Africa, and Turkey and found:

- Career guidance tends to be marginalized; teachers spend much of their time addressing learning and behavioral problems rather than helping the majority of students make educational and vocational choices.
- Career guidance in schools is provided as part of broad guidance counseling; however, some teachers are not trained as counselors.
- There is little comprehensive, up-to-date career information available to counselors.
- At the tertiary education level, career guidance is scarce or nonexistent.

To summarize, education systems must overcome their weaknesses in order to make education relevant to national economies. The traditional structure of education, which favors certain groups of students, needs to be replaced by a flexible, inclusive system that enables more people to acquire education and skills. School curricula must recognize the demand for new skills and deliver them to students. Finally, the old education model of preparing students for work must adapt to changes in industries and the labor market in order to successfully prepare students for employment.

III. How to Move Forward: Public Policies to Improve Educational Flexibility, Skills, and Employability

Priorities and strategies for making education systems flexible, providing relevant skills, and improving employability vary, depending on a country's developmental level, speed of economic growth, and enrolment of secondary education. Economic growth was selected as a factor because growth generates demand and demand determines the scale of skills training and TVET. In addition, secondary education is fundamental to skills development. For example, fast-growing economies require a more skilled workforce to support rapid growth than do slow-growing economies; expanding TVET thus becomes a priority for the former.

For rapidly growing economies in low-income countries that have low secondary education enrollment, the priority is to develop secondary education and secondary-level TVET. For rapidly growing economies in middle-income countries, the priority is to develop tertiary TVET, as secondary education enrollment rates are generally high in those countries. In general, low-income countries have lower enrollment in secondary education than do middle-income countries, but there are exceptions. Within Africa, for example, Kenya has a much higher enrollment rate in secondary education than do other African countries. In many East Asian countries, enrollment at this level is much higher than in Africa or South Asia. Therefore the task for certain East Asian countries will be to strengthen the quality of secondary education and develop two-year and short-term training at the tertiary level.

This section groups countries into four categories that share common issues and strategies:

- Category I: fast growth and low-income countries
- Category II: slow growth and low-income countries
- Category III: fast growth and middle-income countries
- Category IV: slow growth and middle-income countries

Figure 6 shows a matrix of low- and middle-income countries with economies that are growing either rapidly or slowly (the country categories correspond to the quadrants of the figure). The gross secondary education enrollment rate is used as an indicator of a country's income and growth levels.

Figure 6. Country Matrix

Fast growth	
<ul style="list-style-type: none"> - Low secondary education enrollment - High demand for skills - Skills mismatches <p>Examples:</p> <p>Uganda: Average annual GDP growth of 8.3 percent, gross secondary enrollment rate of 25 percent</p> <p>Ethiopia: Average annual GDP growth of 10.7 percent, gross secondary enrollment rate of 33 percent</p>	<ul style="list-style-type: none"> - High enrollment in secondary education - High demand for skills - Skills mismatches <p>Examples:</p> <p>China: Average annual GDP growth of 11.4 percent, gross secondary enrollment rate of 74 percent</p> <p>Jordan: Average annual GDP growth of 7.2 percent, gross secondary enrollment rate of 86 percent</p>
Category I	Category III
Low income	Middle income
<p style="text-align: center;">Category II</p> <ul style="list-style-type: none"> - Low enrollment in secondary education - Low demand for skills <p>Examples:</p> <p>Kenya: Average annual GDP growth of 4.6 percent, gross secondary enrollment rate of 58 percent</p>	<p style="text-align: center;">Category V</p> <ul style="list-style-type: none"> - High enrollment in secondary education - Low demand for skills <p>Examples:</p> <p>Mexico: Average annual GDP growth of 1.3 percent, gross secondary enrollment rate of 87 percent</p> <p>Ukraine: Average annual GDP growth of 0.98 percent, gross secondary enrollment rate of 94 percent</p>
Slow growth	

Source: Author.

Note: The matrix is based on World Bank country classifications: low income, middle income, or high income, as determined by 2009 gross national income (GNI) per capita. For details, see World Bank webpage on classifications (<http://data.worldbank.org/about/country-classifications>).

Data sources for average GDP growth rates are the Global Development Finance and World Development Indicators databases of the World Bank (<http://data.worldbank.org/data-catalog>; accessed September 2010); the source for gross secondary education enrollment rates is World Bank 2010b. Average GDP growth rates are cited for the years between 2005 and 2009; gross secondary enrollment rates are based on 2008 data.

The framework shown in figure 6 is used to provide general recommendations for improving education systems in the three areas discussed in the previous section: (i) developing a flexible education system, (ii) building relevant skills and competencies, and (iii) strengthening school-to-work linkages. Whether a country is low or middle income, whether it has a rapidly or slowly growing economy, a holistic policy and strategy should be pursued to reach balanced, sustainable development. Countries in all four categories of figure 6 thus need priorities that are based on their own economic and education development needs. Table 6 below summarizes policy priorities and options for the three aforementioned areas.

Table 6. Education Policy Priorities and Options for Developing Countries, by Category

	<i>Category I</i> Low income and fast growth	<i>Category II</i> Low income and slow growth	<i>Category III</i> Middle income and fast growth	<i>Category IV</i> Middle income and slow growth
Flexibility	<ul style="list-style-type: none"> • Increase access to and quality of secondary education • Expand TVET at secondary and tertiary levels to respond to demands for skills • Consider making secondary TVET institutions flexible in order to respond to various skills needs 	<ul style="list-style-type: none"> • Increase access to and quality of secondary education • Develop a balanced general and TVET education system • Build smooth pathways between general and TVET education 	<ul style="list-style-type: none"> • Provide second-chance skills program and validate nonformal and informal learning • Expand TVET at the tertiary level to respond to demands for skills • Make tertiary TVET the most flexible part of the system for various skills needs 	<ul style="list-style-type: none"> • Provide second-chance learning and validate nonformal and informal learning experiences • Make two-year college a flexible part of the system for lifelong learning and skills development
Skills	<ul style="list-style-type: none"> • Build students' basic skills and competencies • Partner with industries and/or sectors to identify skills needs and maintain relevance of school courses and qualifications • Balance training of low, medium, and high skills • Balance training in new, hard, and soft skills and their assessment 	<ul style="list-style-type: none"> • Update learning contents and train teachers to develop new and soft skills • Build basic skills and competencies • Develop new hard and soft skills • Balance training in low, medium, and high skills 	<ul style="list-style-type: none"> • Partner with industries and/or sectors to identify future skills needs and maintain relevance of school courses and qualifications • Balance training in low, medium, and high skills • Develop training in new and soft skills and their assessment 	<ul style="list-style-type: none"> • Update learning contents and train teachers in new and soft skills • Develop training in new hard and soft skills
Employability	<ul style="list-style-type: none"> • Establish links with and incentives for industries to participate in TVET programs and provide work experience • Develop a public information system, career guidance, and employment support system 	<ul style="list-style-type: none"> • Develop a public information system, career guidance, and employment support system 	<ul style="list-style-type: none"> • Establish links with and incentives for industries to participate in TVET programs and provide work experience • Develop a public information system, career guidance, and employment support system 	<ul style="list-style-type: none"> • Develop a public information system, career guidance, and employment support system

Source: Author.

1. Building a Flexible and Responsive Education System

Manpower Inc.'s analysis, "The Changing World of Work" (2006), looks at labor market over the ten-year period 2006–2016 and notes that *flexibility is key* in the labor market. Employers will need people who have the right skills and a workforce that is flexible to compete in the global economy. Workers also want more flexibility to work the hours that best suit their interests and needs. Education also needs to adapt to the changing workplace demands of young people and adults, which may require a different structure and mission for education systems than simply preparing students for a stable workforce. A flexible and responsive education system does not come by default, but as the result of a well-designed education strategy that connects education to economic development.

Expanding and financing post–basic education

Secondary education is fundamental for a country's economy and competitiveness. Low- and middle-income countries face different challenges in expanding educational opportunities and achieving lifelong learning. Low-income countries, both rapidly and slowly growing, typically face low attendance rates in secondary education and have financial constraints to expanding this level of education. Thus this group of countries needs to increase access to formal general secondary education, and, if the economy is characterized by fast growth, expand TVET. For middle-income countries the challenge is to increase tertiary education (including tertiary TVET, if the economy is featured by fast growth), as well as to balance general and TVET education systems.

Decisions regarding the intrasectoral allocation of public education funds are highly strategic. Some countries choose to make more investments in lower secondary education, others in upper secondary education (including vocational education). Variation in the distribution of resources across education sectors varies from country to country, depending on where countries are on the path of post–basic education and which sector policy makers think is of more strategic importance. If one compares Malaysia and Pakistan, for example, Pakistan is far behind in terms of developing universal tertiary education, but its economic structure is also very different from that of Malaysia. Thus it is more important for Pakistan to increase the distribution of resources to higher education than it is for Malaysia, which has reached a higher level of enrollment in tertiary education.

Reducing system inefficiencies is another way to release resources and expand secondary education coverage. Overloaded curricula are not only useless for students, they also waste resources. For example, until recently, secondary schools in Uganda taught 44 subjects. Teaching this number of subjects required 8 times the number of teachers needed to teach 5 subjects (as is the case in Singapore) at the high school level. If subjects are reduced to focus on core

competencies and skills, more teachers are freed up to teach more students. With demographic change in many parts of the world (except Africa) leading to a decreasing number of students, student-teacher ratios will also need to be adjusted.

Box 3. Chinese Government Provides Financial Subsidies for Poor Students to Attend TVET

To attract students to TVET schools at both the secondary and tertiary levels, the Chinese government recently decided to provide financial subsidies to students from poor families. In Guangdong Province, for example, the local government provides students RMB 1,500 (US\$230) per year to cover fees and costs for their first two years of study, regardless of whether a student attends a public or private TVET institution. During the third year, students receive payments from companies in their work program. Depending on the level of local economic development, students may receive higher subsidies if the local government is willing to provide them. The policy is considered “intellectual poverty reduction” because when one student becomes employed, the whole family steps out of poverty.

Source: Author.

Spending more, however, does not necessarily mean better education outcomes. A World Bank report, “Skills, Not Diplomas—Managing for Results in Education Systems in Eastern Europe and Central Asia” (Sondergaard and Murthi 2012), recommends using more flexible and smarter financing mechanisms to shift systems from financing inputs to financing outcomes. The alternatives include: (i) using per student financing instead of tying money to inputs (e.g., the number of teachers, janitors, or computers), (ii) introducing performance-based budgeting, which ties budgets to measurable results, (iii) embedding incentives into financing flows, so that actors in the system are rewarded when they deliver results, and (iv) exploring private sector resources.

It is also important to explore private and/or community provision of education in order to expand secondary and tertiary education. In the Philippines, public-private partnerships in education enrolled 567,500 high school students (8.8 percent of the total number) in the 2008–09 school year. To make good use of the excess resources of private schools, the Education Service Contract (ESC) was created. The contract provides a fixed tuition subsidy to graduates of public elementary schools to enroll in private high schools. The ESC program is considered a cost saving for the government. While the direct per student cost of public secondary school is around \$185, the ESC cost per student is \$107. This mechanism has helped the government address the problems of congestion and poor quality in public schools (World Bank 2010a).

Integrating formal and nonformal education

Formal education is not the only pathway to expanded learning opportunities. In many cases, formal education does not respond well to nontraditional students.

Nonformal education, through its flexible schedules, part-time or e-learning, complements formal education and broadens learning opportunities to meet diverse needs. Australia's Technical and Further Education (TAFE) Program provides youth and adults from diverse groups multiple pathways to learning and the world of work. Some 85 percent of students in the country leave school without completing year 10 of their education. TAFE, through its flexible programs, provides unique opportunities for these people to restart their educations (Wyn, Stokes, and Tyler 2004).

Box 4. Australia's Technical and Further Education Program

In 1974, the Technical and Further Education (TAFE) Program was established to develop the skills and knowledge of the working population and thus strengthen Australia's competitiveness. Through structured technical and further education, TAFE offers a diverse, open education system to students in school, the unemployed, school dropouts, university students, and adults. Among its features are:

- Vocational education at the secondary level, which serves 70 percent of high school students who will not immediately go on to university, providing them work-related skills. The program is organized in two ways: (i) students attend a TVET program as a part of a senior secondary education certificate; and (ii) students have the opportunity to gain a nationally recognized TVET qualification through formal arrangements with employers while they complete a secondary certificate, participating as a full-time student and part-time employee.
- Re-entry into education through TAFE as a second-chance education program, which serves one-third of secondary school leavers. Students can enroll in a certificate course and go on to the next level and earn a diploma or a degree in their chosen field, or they can take short courses to try out different careers.
- Multiple entry and exit between universities and the TAFE Program. TAFE concluded a credit transfer and articulation agreement with a range of universities, enabling students to transfer TAFE credits to those universities; at the same time, students at universities can transfer their credits toward TAFE courses and qualifications.
- Short-term courses that develop specific skills, such as those needed to work with cars or as an electrician or chef, with TAFE providing an apprenticeship or traineeship.

Sources: Based on Jarvie 2005 and TAFE website, <http://www.tafensw.edu.au> (accessed December 2010).

In Korea, parallel systems of formal and nonformal education co-exist in order to provide second chances for those who missed the initial learning opportunities offered by the formal school system. Starting in the 1980s, a set of nonformal education modalities were established within a lifelong learning framework to facilitate mass education. The nonformal system is parallel to but closely integrated with the formal education system; the certificates and diplomas that it grants are considered the same as those granted by regular schools. Beginning at the elementary school level, the nonformal system offers civic education programs for elementary school dropouts; at the secondary level,

technical schools are designed to take civic education graduates. Special evening classes are available for working teenagers. In addition, distance-learning programs are available for working teenagers, industrial workers, and housewives (Kim 2007 and Republic of Korea 2008).

Advances in technology, particularly the Internet, have made learning accessible to anyone, anytime, anywhere without the need to construct new buildings. Computers and the Internet make possible a dramatic reduction in the cost of education in terms of instructional personnel and physical plant. Technology-assisted simulations, for example, can teach students how to fly an airplane and operate machines. Technology thus has the potential to partially replace real equipment for work-related training, which is the main financial constraint of vocational and technical education. Internet learning, or e-learning, also implies increased learning opportunities.

Creating a flexible structure that can accommodate the learning needs of all

One of the key elements of a flexible education system is its structure. In the United States, Canada, and the United Kingdom, community colleges (referred to as “colleges” in the United Kingdom) are the most flexible part of the system, where students of different ages and from different backgrounds can find a place and a program to meet their needs at their convenience. Some 12 million students in the United States attend the nation’s 1,200 community colleges. These colleges enroll nearly half of undergraduates in the country for both credit and noncredit classes, and serve both full- and part-time students (Bailey 2003). Community colleges have many distinctive features, including low tuition fees, flexible schedules, and credits that can be transferred to universities. They provide second-chance learning opportunities, skills training, and re-skilling programs to local residents.

Montgomery College (MC) in the state of Maryland is a case in point. Founded in 1946, MC is one of nation’s best community colleges. It offers a variety of programs, ranging from a language program for immigrants, contract training for employers, and hundreds of job-related skills relevant to the local economy. The college’s students are not solely of college age, but include adult learners. According to FY2008 data, 24,452 students attended the institution; of which 38.5 percent were full-time and 61.5 percent, part-time. The average age of students was 26, of which 42.2 percent were 20 and under, 35.4 percent were between 21 to 29, and 22.4 percent were 30 and above. Many students are able to transfer to four-year universities. In FY2009, for example, 5,135 students transferred to four-year educational institutions.

Box 5. A Recent Trend in Community Colleges in the United States

Recent years have witnessed a reversal of the typical trend among community college students: graduates who have already successfully completed four-year universities are enrolling in community colleges in the United States to update and learn marketable skills. This group of students constituted 16 percent of all community college students in 2000. Among the characteristics of this population are: (i) they are part-time students, taking one or more courses; (ii) their specific majors are in technical and vocational areas, such as computers, paralegal studies, business, accounting, physical therapy, engineering-related disciplines, interior design, and electronics; (iii) they are seeking better career opportunities. Among the reasons four-year university graduates return to community colleges are: seeking a new career (56 percent), gaining skills needed to generate supplemental income through a second career, updating careers and skills, personal enrichment, and exploring different curricula in order to decide on a career.

Source: Quinley and Quinley 2000.

Middle-income countries may follow the examples of the United States, Canada, and the United Kingdom by making junior, or community, colleges the most flexible segment of their education systems, designing them to serve the varied needs of college diplomas, skills updating, and career changes, among other goals. Low-income countries, where secondary education enrollment is low, may consider making existing TVET institutions that traditionally only accept lower secondary graduates a most flexible structure in their education systems. India is a case in point. In the 1950s the Indian government established the Industrial Training Institutes (ITIs) to meet the country's skills requirements for technology and economic growth. Subsequently, private ITIs mushroomed in the 1980s, bringing the total number to 8,014 (2,133 government and 5,881 private institutes). Today, ITIs provide flexible skills training programs to individuals for both formal and informal sector employment, targeting students from poor and disadvantaged backgrounds. The ITIs:

- Offer flexible course durations, ranging from a few months to three years.
- Serve different needs of learners, including degree education (engineering) and short-term certificates (e.g., beauty) for students who will be self-employed.
- Accept secondary school dropouts and youth from poor families who seek to learn skills for employment.
- Are open to adults seeking to make a career change or update their skills.

Building flexible and multiple pathways to both general and vocational education

One of the obstacles to attracting students to TVET is that it is often associated with students who are “sorted out.” As noted earlier, this type of education often has low status and is considered a dead end. TVET in many countries still faces this “second-class” image. The fundamental solution to this problem is to break

down the “tracking” of students and instead build multiple pathways to general and vocational education. Several advanced countries have effectively addressed the issue in this way, including the United States, Singapore, and a number of European countries.

In the United States, for example, the articulation between general and vocational education programs is truly visible at the post–basic education level due to flexible structures at the high school and community college levels. About a decade ago, traditional TVET programs were eliminated as they were associated with a poor image and low status. New programs entitled “career technological/technical education,” or CTE, were then created. For example, in 1995, the state of Maryland decided to create a CTE program to prepare students for both employment and further education. The program cultivates academic, technical, and workplace skills. Students can take CTE programs at the high school level as electives, the credits for which are considered part of high school graduation requirements. Students involved in the CTE program have a choice of continuing to tertiary education or proceeding immediately to employment. The program is seen as symbolizing an upgraded level of skills; it is also considered to have eliminated the practice of “sorting out” students from general education (Oliver 2005).

In Singapore, the TVET model is different from that used in the United States, but works well in the local context. First, an effort was made to rebrand TVET as “technical education” by creating the Institute of Technical Education (ITE). ITE serves the lowest-performing 25 percent of students in high school. Second, the government has attempted to improve the image of technical education among the public through media campaigns and government support of ITE. Third, the new institute opens the door for students to go on to higher levels of learning.

In Europe, the trend is toward the validation of all kinds of learning and experiences within a lifelong learning system, one that includes formal, informal, and nonformal learning, as well as TVET and work experience. The European Union (EU) accordingly developed the European Qualifications Framework (EQF). The EQF specifies eight levels of skills, ranging from basic to advanced qualifications, to which individuals’ learning and experience are linked. The EQF emphasizes what learners know, not where they learn; it eliminates the gap between general education and TVET, facilitates the recognition of skills by employers, and promotes the mobility of workers.

Box 6. The European Qualifications Framework

The European Qualifications Framework (EQF) acts as a translation device that makes national qualifications more readable across Europe. It is characterized by several features:

- The core of the EQF is composed of eight reference levels that describe what a learner knows, understands, and is able to do—identified collectively as “learning outcomes.”
- National qualification levels will be replaced by the EQF reference levels, ranging from basic level 1 to advanced level 8.
- The EQF applies to all types of education, training, and qualifications, from school education to academic, professional, and vocational learning.
- It encourages lifelong learning by promoting the validation of nonformal and informal learning.
- It promotes workers’ mobility.

Source: EQF website, EC, Brussels, http://ec.europa.eu/education/lifelong-learning-policy/doc44_en.htm (accessed December 2010).

This trend points toward a work world that considers where you studied less important than what you know and whether you will continue to learn. The trend has several implications for middle- and low-income countries. For middle-income countries, where gross enrollment in post–basic education is already substantial, the focus should shift from selective to inclusive secondary education. Even though economic growth may be slow, it is important to train a country’s talent pool for the future economy. It is critical for these countries to develop a lifelong learning system where people are given the opportunity to develop and update their skills over time. For low-income countries, it is critical to develop a smooth pathway between general and TVET systems, which should open doors for further learning and employment; both types of education should also lay the foundation for lifelong learning. A strategic view of the articulation of secondary and tertiary education will enable the preparation of laborers, technicians, and leaders (Briseid and Caillods 2004).

2. Improving Skills for Productivity and Life

An effective national strategy can provide a clear vision of skills needs and set future education targets. The United Kingdom provides an example of this strategy. In 2006, the government published the “Leitch Review,” which identified the country’s optimal “skill set” for 2020 in order to maximize economic growth, productivity, and social justice. With the aim of becoming a world leader in skills by 2020, the government increased specific target benchmarks for functional literacy and numeracy (from 85 percent and 79 percent, respectively, in 2005 to 95 percent in 2020); the percentage of adults who

have gained at least a Level 2 qualification (to more than 90 percent);⁶ and the percentage of adults who have gained a higher education qualification (from 29 percent in 2005 to 40 percent in 2020).

The objective of the new benchmarks is to increase national production by 15 percent and employment, by 10 percent. These goals are expected to be achieved by working with employers, trade unions, schools, colleges, universities, training providers, and individuals to break down barriers to opportunities, giving everyone the best chance to make the most of themselves and their potential (United Kingdom 2007).

Developing competencies and skills for today and the future

In any society, be it middle or low income, rapidly or slowly growing, young people need to possess skills for both the economy and citizenship. Without knowledge and skills for the economy, young people will be excluded from it, lacking the basic necessities to survive and succeed in the community (Hargreaves 2003). Similarly, without skills for citizenship, they cannot be responsible citizens and help build a coherent society. One of the main purposes of education is to enable and empower people of all ages to participate in society (both local and global) and contribute effectively to sustainable development and social cohesion. In the context of globalization and competitiveness, it is crucial for young people to understand different cultures and beliefs, be tolerant of these differences, respect others, be able to work individually and in a team, and be responsible citizens (Reimers 2006).

For many low-income countries, whether fast or slow growing, the urgent issue is to build a solid foundation of basic skills and competencies. African countries, for example, are facing the challenge of expanding mathematics and science education, both in terms of the numbers of students as well as the quality of teaching. It is critical to introduce these subjects earlier—from primary school all the way to university—in order to produce science and engineering talent for national economies.

For middle-income countries, where the quality of education is comparatively high, the challenge is to identify and develop the right type of skills for the future. Gardner (2006, 17), for example, considers that “current formal education still prepares students primarily for the world of the past, rather than for the possible world of the future.” He suggests “five minds for the future”:

1. *The disciplined mind*, which has mastered at least one way of thinking—a distinctive mode of cognition that characterizes a specific scholarly discipline, craft, or profession.

⁶ Level 2 is a competence that involves the application of knowledge to a significant range of varied work activities, performed in a variety of contexts. Some of these activities are complex, or nonroutine; some involve individual responsibility or autonomy. Collaboration with others, perhaps through membership in a work group or team, is often a requirement.

2. *The synthesizing mind*, which takes information from disparate sources, understands and evaluates that information objectively, and puts it together in ways that make sense to the synthesizer and also to other persons.
3. *The creating mind*, which breaks new ground. It sets forth new ideas, poses unfamiliar questions, conjures up fresh ways of thinking, and arrives at unexpected answers.
4. *The respectful mind*, which notes and welcomes differences between human individuals and between human groups, tries to understand these “others,” and seeks to work effectively with them.
5. *The ethical mind*, which ponders the nature of one’s work and the needs and desires of the society in which one lives (Gardner 2006, 3).

While Gardner considers it risky for an individual to lack any of these “minds,” it is difficult to impart all five minds via mass education. Developing the disciplined mind, the respectful mind, and the ethical mind can feasibly be cultivated through schools and in partnership with families and communities. The synthesizing and creating minds, however, are more difficult for the majority of people to develop, given the varied capacities of different people. In addition, education systems have to overcome the challenges of overemphasizing rote memory and examinations in order to cultivate synthesizing and creative minds in young people, since these characteristics may not be included in the objectives of school curricula and teachers may not be trained for this task.

Focusing on teachers and soft skills

In today’s world of knowledge and information, teachers are expected to be change agents and catalysts for the cultivation of the younger generation, complete with skills to help build the twenty-first century. In order to prepare a capable generation of the future, teachers must be clear on their mission and competent in developing students’ competencies and skills. Hargreaves (2003, 24) notes that in the knowledge society, teachers must build a new professionalism which allows them to:

- promote deep cognitive learning;
- learn to teach in ways that they themselves were not taught;
- commit to continuous professional learning;
- work and learn in collegial teams;
- treat parents as partners in learning;
- develop and draw on collective intelligence;
- build a capacity for change and risk; and
- foster trust in processes.

There is a fundamental difference between teaching for the knowledge society, the labor market, and examinations. To teach for the knowledge

economy and the labor market—that is, to develop students with lifelong skills (including the skills to learn)—teachers have to focus on what and how students learn best, instead of teaching to a test. In an economy dominated by teamwork and communications, high-stakes examinations can be extremely harmful. When teachers have to focus on standardized reforms and examinations, they have no time or energy to develop themselves or focus on students’ work and skills (Hargreaves 2003).

Box 7. Two Innovative Curricula in the Boston Area of the United States

In 1985, Harvard Medical School introduced the New Pathway (NP) Program as a preclinical curriculum. The curriculum was developed in recognition of the fact that students’ ability to cope with change has become integral to success in the rapidly transforming, technology-dependent practice of modern medicine. The program is characterized by such features as: (i) small and highly interactive tutorial learning sessions, (ii) a problem-based approach to learning through group investigation and analysis of real patient cases, (iii) a strong emphasis on the patient-doctor relationship and locating modern medical practice in its social context, and (iv) a multidimensional schedule that forces students to take responsibility for their own education through conducting their own library research and deciding on their own external research. Results of the program show a difference between NP and traditional medical students in the domain of humanism, both during medical school and well into medical practice later in their lives.

Another example of curriculum innovation can be found at the Franklin W. Olin College of Engineering. To effectively prepare students for the future, the college invented a unique curriculum for engineering students that: (i) integrates coursework and projects so that students apply subject matter to real problem solving to develop entrepreneurial, teamwork, and communication skills; (ii) educates the whole person by developing students’ extracurricular interests, teaching nontechnical topics to encourage personal growth; and (iii) allows for both flexibility and accountability—students have significant flexibility in charting their paths through the curriculum, which is believed to be important for developing their creativity. To graduate, students must develop and demonstrate skills in several competency areas, including communication, qualitative understanding, quantitative analysis, teamwork, contextual thinking, design, and entrepreneurial thinking and action.

Sources: Harvard University, 2004, “The New Pathway M.D. Program,” Web page, Harvard Medical School, Cambridge, Massachusetts, http://ecommons.med.harvard.edu/ec_vqp.asp?Name_GUID=%7B7D63742B-05F7-4F58-8441-46C8C0BF6A2A%7D (accessed April 2012); Peters et al. 2000; Somerville et al. 2005.

Focusing on tests or on the labor market has different implications for students. In school, the quality of an individual’s work affects only a student’s grades, while in the workplace, one’s mistakes affect other people as well (Houghton and Proscio 2001). To teach for the knowledge society, a more effective strategy has to be developed to impart soft skills to students from kindergarten through university via games and projects that encourage teamwork and communication—where student scores do not depend on individual, but group, work.

The differences between teaching to a test and developing twenty-first century skills suggest that teachers need to find innovative ways to teach. Since no one has enough knowledge about how to teach soft skills, learning together with other teachers through exploration is a necessity. China has a long tradition of using teaching research systems as a mechanism of quality assurance. The system includes teaching and research groups where teachers who teach the same subject meet weekly to prepare, discuss lessons, and solve problems together. When problems cannot be solved, the teachers raise them to the district-level teaching research system for further inquiry, discussion, and solution (Wang 2005).

Workforce development programs in community colleges in the United States demonstrate effective ways of teaching soft skills, including integrating soft skills training into every element of the curriculum. This training includes practicing social interactions that are likely to arise on the job, such as interviewing techniques, negotiating with team members and supervisors, creating work-like tasks and establishing teams to complete them, putting students in the employer's position to let them experience the needs and pressures of those who give directions, establishing disciplines of the workplace in all aspects of the program, and giving students opportunities to meet successful people in order to overcome intimidation and alienation (Houghton and Proscio 2001).

Linking supply to demand for skills

To effectively prepare students with the skills needed in a rapidly changing economy requires at least two conditions: a system that quickly responds to labor market demand and mechanisms that transmit labor market signals to the supply side. In general, traditional four-year universities, which mainly prepare high-level professionals, such as engineers and physicians, are not seen as effective in preparing middle-level labor force for the job market, a group needed in large number by that market. Short-term vocational educational institutions, such as two-year community colleges, polytechnic institutions, or high-level technical institutions, were thus created in the middle of the twentieth century to quickly respond to the needs of the industrial sector (Mazeran 2007).

Two-year technology institutions or community colleges are particularly pertinent to fast-growing economies in middle-income countries where the economy requires skills for new and more jobs. These institutions are becoming popular in developing countries as a quick fix for meeting labor market demands. In Tunisia, for example, the government has made a strategic choice in favor of short-term training. In 1995, the Higher Institutes of Technological Education, or ISETs, were created and have grown rapidly ever since. At the initial stage there were 2,000 students in ISETs, a number that has since expanded to 30,000. The program teaches technical and pedagogical skills; training duration is two-and-a-half years. By 2003, 82 percent of ISET graduates

were successfully engaged in the labor market and 9 percent had chosen to pursue further studies. As of 2005, it was expected that the number of ISETs would be increased (Dhouib 2005). In the United States, community colleges have added certification programs in training for green-economy jobs, ranging from wind technicians to solar cell designers to energy auditors—responding to the needs of a rapidly changing job market (Kimes 2009).

Such education institutions appear to be valued more by employers in developing countries than four-year universities. During the East Asia financial crisis in the 1990s, for instance, employers tended to dismiss graduates of traditional universities rather than those who had taken more vocational courses. In Malaysia, graduates of vocational tertiary education institutions have better employment opportunities than do those of traditional universities (Salmi 2005).

For low-income countries, where there is an oversupply of low-level skills and large demand for high-level skills, a balanced approach is needed to develop both sets of skills. In addition, skills development policy needs to be linked to national strategies and economic structures now and in the future in order to match the supply of and demand for skills.

With regard to marketable skills, the sector matters. In the United Kingdom, the Commission for Employment and Skills was established in 2008 to strengthen employers' voice in education, reduce skills gaps and shortages, and achieve the best from existing employment and skills systems. Through this initiative, the government funded 25 Sector Skills Councils (SSCs), covering over 90 percent of the workforce. The SSCs aim to fulfill four key goals:

- reduce skills gaps and shortages;
- improve productivity, business, and public service performance;
- increase opportunities to boost the skills and productivity of everyone in a given sector's workforce; and
- improve learning through apprenticeships, higher education, and National Occupational Standards.⁷

The SSCs support schools, colleges, and universities to design and maintain relevant courses and qualifications and increase employers' commitment to and investment in staff training and development.

3. Strengthening School-to-Work Linkages for Employment

The school-to-work transition is influenced by the education sector, the labor market, and the business sector. Educators tend to look at the employment and/or unemployment rate and educational attainment. Labor economists, on the other hand, often focus on macroeconomic stability, the investment climate, job availability, and active labor market policies. The business sector is concerned with certificates and qualifications. Indeed, the school-to-work transition is a

⁷ U.K. Commission for Employment and Skills, South Yorkshire, UK, <http://www.ukces.org.uk/sector-skills-councils/about-sscs/ssc-goals/> (accessed December 2010).

complex issue. A person’s employment depends on a combination of factors, including job opportunities, wages, labor market regulations, relevant education and skills, qualifications, family background, work experience, career information, and individual choices, among others. These factors imply that interventions in education are necessary, but may not be sufficient to lead to employment. A comprehensive strategy involving the government, the education sector, and employers may be more effective.

Government-business partnerships

Employers play an important role in the school-to-work transition by providing work experience and, eventually, jobs—particularly in fast-growing economies.

Table 7. Services that Support Young People in the Transition to Work, Various Countries

Countries	Description of services and support
United Kingdom	Government programs provide 18–24-year-olds at least six months of jobseeking services, career guidance advice, basic education, skills training, and work experience. Job placement is subsidized and follow-up is provided.
Canada	Government department and agencies work in partnership with employers’ and workers’ organizations and civil society groups to offer work experience, learning, and skill-building opportunities, basic and advanced employment skills services, and assistance in finding career-related summer jobs. Employers are offered wage subsidies for job placements.
Chile	The National Service for Training and Employment is in charge of coordinating and operating a program aimed at increasing the probability of employment for youth who come from low-income families and/or have difficulties with social and economic integration. Enterprises assume a tutoring role and provide in-house work experience, insuring that training is easily adapted to local labor market demands.
France	The “New Services, New Jobs Program” of 1997–2003 provided wage subsidies of up to 80 percent of the minimum salary per job per year, for five years, to employers who hired young people under contract. Mentors were assigned within these enterprises to provide the young workers guidance and support.
Republic of Korea	The Youth Work Experience Program in Korea aims to provide work experience and an employment support system. Through the program, college students are employed as interns in public and private institutions to gain hands-on experience and help them make job choices in the future. Enterprises that employ youth as interns can receive wage subsidies for three months and those that hire interns as regular workers can receive another three months.
Hong Kong SAR, China	The Youth Pre-Employment Training Program offers school leavers aged 15–19 years training in interpersonal skills, including leadership, self-discipline, team building, computer literacy, and vocational skills. The program is combined with subsidized on-the-job training to increase employment opportunities. Employers are commissioned and subsidized to appoint mentors to guide trainees throughout their training.

Source: Author summary of 2005 International Labour Conference, 93rd Session, “Youth: Pathways to Decent Work,” May 31–June 16, ILO, Geneva.

A number of governments have tried to involve employers in providing work experience, apprenticeships, and employment for young people. In reality, however, their involvement in the process is problematic due to a lack of corporate responsibility and incentives, as well as the high cost of employer training programs.

The partnerships and incentives outlined in table 7 are possible for both low- and middle-income countries, and for formal and informal sectors. In transitional and middle-income economies, where governments have sufficient resources and large formal economic sectors exist, it might be useful to engage enterprises in such services. In many low-income countries, where the informal sector dominates the economy, government-industry partnerships may be useful, but difficult to manage because firms are small.

Engaging local industry in developing relevant skills and choices

No matter what level of education students attain, most are likely to be employed locally. Therefore engaging local industries in education is crucial in order to deliver relevant education and enable choices that ease the school-to-work transition. This is particularly true for TVET, which is relatively expensive and whose only outcome is gainful employment related to the training provided. Thus closer ties between workforce development and employers are the key to TVET. In many Asian countries—including Korea, China, Singapore, and Malaysia—TVET is recognized as an asset in national human development strategies. Employer involvement is equally critical to general education programs that have a TVET component designed to lead students to employment. The CTE program in the state of Maryland mentioned earlier in the paper, for example, gives students a choice of further education or the world of work.

Box 8. Career Technology Education Program in Maryland, United States

Currently 50 percent of high school students in Maryland are enrolled in Career Technology Education (CTE) programs. Students attend general secondary school for a half-day, as well as two to three hours of CTE programs. The latter provide a road map that helps students plan for and pursue further education and careers by exploring a broad range of career options. As students apply academics and develop technical skills in a given career area, they can earn college credits and industry-recognized credentials.

One of the important features of the program is that the Department of Education in Maryland has worked closely with hundreds of Maryland business and industrial partners to create a Career Cluster Framework (CCF). The CCF defines career pathways by core business function. Career pathways guide the development of instructional programs that prepare students for the full range of career opportunities. CTE programs take a proactive approach to meeting workforce demand within the industrial sector. Thus the programs allow business leaders to be partners in education, helping ensure that Maryland both attracts and retains businesses and has a high-quality workforce.

Source: Oliver 2005.

Partnerships between Nanyang Polytechnic in Singapore and local industries, for example, have led to the formation of a board consisting of employer representatives, instructors from various industries, and the donation of updated equipment to schools. Through these partnerships, firm staff help the Polytechnic with project work and the school in turn helps firms develop business processes. At the same time, teachers at the Polytechnic participate with their industrial counterparts in developing innovations, technologies, and products. The partnerships also produce graduates that are in high demand among local industries, especially new-generation industries (Pillay 2005).

Involving industry in TVET programs and encouraging them to provide work experience to students is critical to the future employment of these students. However, industrial partnerships do not come naturally. Interventions by and incentives from the government play an important role in bringing industry to the table as a training partner. In Toulouse, France, for example, all employers and/or companies pay 3 percent of their payroll in an apprenticeship tax, making companies obligated to participate in skills training.

To make school curricula relevant to employers' needs, Kenya has a well-established partnership that allows business representatives to participate in the program committees of the Kenya Institute of Education. Both partners decide what is to be taught in vocational education and the business representatives who are responsible for teaching are given seats on the governing board (Atchoarena and Delluc 2002).

Providing career information and guidance

As more choices for employment become available, career information, counseling, and guidance become important for education institutions in developing countries. Grubb (2002) notes that career information and guidance across countries aim to: (i) help select an appropriate occupation in harmony with the nature of the student, (ii) assist individuals to make rational choices among expanded alternatives, and (iii) provide information necessary for retraining and upgrading an individual's education, extending the need for career information and guidance to the entire lifespan. Information and guidance systems are relevant for both low- and middle-income countries with slow- and fast-growing economies.

The role of government. Given the inequity of a market in which the poorest people have much more need of career information and guidance due to their limited access to such information, public sector involvement is appropriate (Grubb 2002). The public sector can create career information networks through the Internet and schools, providing information on what skills are needed in the labor market. While career guidance and information services are weak in the education sector, public employment services are available in many countries—often provided by a national labor department. For example, the U.S. Department of Labor has established 1,000 “One-Stop Career Centers” in

designated locations all over the country. However, educators and schools are rarely made aware of the information disseminated by these centers.

The role of schools. Schools have a unique role to play in career counseling. Schools can facilitate the transition to work by establishing and emphasizing the role of career counselors, who help students make informed decisions about their future. Grubb (2006) lists several roles that schools can play in linking vocational education and training to work:

- **Providing information to students and making them responsible for establishing links with employers.** By providing career-related information and guidance, this approach enables students to make decisions about which occupation they want to enter and which programs prepare them for those occupations.
- **Creating mechanisms that permit direct cooperation between TVET programs and employers.** TVET providers and employers should cooperate in shaping the content of TVET programs, determining the number of individuals to be trained, developing assessments, and creating qualifications.
- **Meeting qualifications and credentials.** Schools can provide skills that ultimately lead to qualifications and credentials for students.

The role of the private sector. In general, the private sector, which includes nongovernmental organizations (NGOs), is quick to fulfill service provider niches that a government is unable to fulfill. For example, in many countries, the private sector publishes books on occupations, handbooks, and career information guides (OECD 2004). In South Africa in the late 1980s and early 1990s, a number of NGOs were established to provide career guidance. These organizations developed into a national NGO that provided the service. In time, increasing attention from international, corporate, and other bodies diminished the role of NGOs, but their policies have now been incorporated into government policy.

The role of parents, employers, and individuals. Parents can influence a youth's choice for career or further education. Providing parents with relevant knowledge and information and ensuring their role as supporter rather than controller is thus important. Employers, on the other hand, can provide work experience through school programs or at the workplace, increasing the opportunity for employment (OECD 2004). The school-to-work link is partly dependent on individuals, as it relates to their decisions on when to enter the labor market, what they are interested in doing, and what area of expertise they possess. Individuals need to embrace lifelong learning opportunities and manage the skills shortage to their advantage by seizing every available opportunity for training, upskilling and/or reskilling, making themselves flexible to employers, and actively looking for career opportunities.

IV. Conclusions

In a rapidly changing world where a country's development and competitiveness is dependent on a skilled workforce, education plays a critical role. The three pillars of flexibility, skills, and employability are important for maximizing human resources for development. To be effective, education systems must shift from traditional rigid, regulation-oriented organizations to more open, flexible, learner-centered systems that deliver skills and capacity development opportunities to individuals at all stages of their lives, equipping them with skills for the world of today and tomorrow. These systems must also effectively prepare learners to make the transition from school to work.

Flexibility

The traditional selective, degree-oriented formal education and training model has failed to respond to fast-changing demands for a more skilled workforce by delivering new and updated skills. To develop a country's prosperity, all citizens—including youth and adults—need to develop their potential for learning and skills development. A successful education system should facilitate their needs for both further education and work placement; the latter has been the weakest link in most systems.

While an entire education system needs to be flexible, individual countries may consider strengthening the skills development aspect by making one part of the system more flexible, enabling people of all ages to access skills training and retraining. For middle-income countries, two-year college programs may become the most flexible part of the system, offering second-chance and short-term skills development opportunities. For low-income countries, the secondary TVET level may become the most flexible part of the education system, offering various long- and short-term skills training programs to meet the needs of the national economy.

Skills Development

The skills and competencies in demand change over time. Out-of date learning content is no longer effective for employment. A new set of skills combining basic, new, and soft skills needs to be developed and integrated into school curricula. Teachers play an important role in developing students' skills, but in many cases, they are not trained to teach soft skills. Emphasizing new skills, such as teamwork, communication, and leadership, has implications for teacher measurement and evaluation systems. Without changing assessment systems, skills development will only be an empty promise. Making skills relevant suggests that skills cannot be developed by the education sector alone—education systems need to engage industries and employers in substantial ways, including in the identification of skills gaps and the provision of training that reflects employers' demands.

Employability

The marketplace is not driven by the supply side alone, but also by the labor market and employers. It is thus necessary for policy makers to understand how the education system and the labor market interact in order to prepare students for employment. Education and labor markets represent two ends of the spectrum. Education tends to be rigid and conservative, while labor markets are fluid and unpredictable. Effective linkages between the two depend on changes in both sectors. Old planning models and apprenticeship programs must respond to the changing context of the labor market, with even successful models facing adaptation challenges today.

Labor market factors are also important. Without growth and positive labor market policies, more higher-quality human resources cannot be absorbed by a national economy and may result in unemployment. Information and career guidance are thus important, particularly for the poor, since they have fewer networks and connections to the labor market than do the wealthy. The role of learners themselves also needs to be emphasized. In order to secure employment, they need to be realistic in their expectations, prepare themselves with the skills in demand, and develop self-learning skills, thus making themselves desirable to employers.

Since labor markets and education systems differ from country to country, there is an urgent need to better understand the linkages between them in developing countries. While there is ample information on OECD countries regarding the enrollment, progression, and completion of students in secondary, vocational, and tertiary education, such information is limited or not available for developing countries. Similarly, for low-income countries, information is not available regarding the skills and competencies required and valued on the job market and how they are related to employment, particularly in the informal sector. In addition, data on the school-to-work transition is limited, such as whether vocational education, if designed and implemented well to deliver relevant skills, contributes more to economic growth than general secondary education. Educators also need to better understand how to prepare students and learners with soft skills. More analytical work and country case studies will be useful to provide evidence-based policy recommendations for developing countries in this area.

References

- Adams, Arvil V. 2007. "The Role of Youth Skills Development in the Transition to Work: A Global Review." Working Paper 40644. Human Development Children and Youth Department, World Bank, Washington, DC.
- Amer, Mona. 2007. "Transition from Education to Work: Egypt Country Report." European Training Foundation, Turin, Italy.
- Assaad, Ragui. 2007. "Unemployment and Youth Insertion in the Labor Market in Egypt." ECES Working Paper 118. ECES (Egyptian Center for Economic Studies), Cairo. (Presentation originally made at ECES conference in Cairo, Egypt, November 21–22, 2006.)
- Assaad, Ragui, and Ghada Barsoum. 2007. "Youth Exclusion in Egypt: In Search of 'Second Chances.'" Middle East Youth Initiative, Wolfensohn Center for Development, Brookings Institution, Washington, DC.
- Atchoarena, David, and André Delluc. 2002. *Revisiting Technical and Vocational Education in Sub-Saharan Africa: An Update on Trends, Innovations, and Challenges*. Geneva: UNESCO.
- Azam, Mehtabul, Alimee Chin, and Nishith Prakash. 2010. "The Return to English-Language Skills in India." Working Paper. World Bank, Washington, DC.
- Bacchetta, Marc, Ernst Ekkehard, and Juana P. Bustamante 2009. *Globalization and Informal Jobs in Developing Countries*. Geneva: WTO and ILO.
- Bailey, Thomas. R. 2003. "Community Colleges in the 21st Century: Challenges and Opportunities." Community College/Cluster Connections. CCRC (Community College Research Center) Brief 15. CCRC, Teachers College, Columbia University, New York.
- Barro, Robert J., and Jong Wha Lee. 2000. "International Data on Education Attainment: Updates and Implications." CID Working Paper 42. Center for International Development, Harvard University, Cambridge, MA.
- Blomquist, John. 2007. "Youth Employment in MENA: Challenges and Ways Forward." Presentation made at the World Bank seminar, "Stimulating Youth Employment in MENA," Washington, DC, December 5.
- Briseid, Ole, and Françoise Caillods. 2004. *Trends in Secondary Education in Industrialized Countries: Are They Relevant for African Countries?* Paris: UNESCO International Institute for Educational Planning.
- Cheng, Kai-ming. 2007. "Education, But for What? Challenges from the Workplace." Presentation made at World Bank Institute course, "Education for Development and Competitiveness: Challenges and Opportunities for Post-Basic Education," Washington DC, May 14–25.
- Daily Star*. 2007. Employment Section. Dhaka, Bangladesh. September 27.

- Deissinger, Thomas, and Silke Hellwig. 2005. "Apprenticeship in Germany: Modernizing the Dual System." *Education + Training* [Emerald Group Publishing Limited] 47 (4/5): 312–24.
- Denison, Edward, F. 1962. "The Sources of Economic Growth in the United States and the Alternatives before Us." Supplementary Paper 13. Committee for Economic Development, New York.
- Denison, Edward, F., assisted by Jean-Pierre Pouillier. 1967. *Why Growth Rates Differ: Post-War Experience in Nine Western Countries*. Washington, DC: Brookings Institution.
- Dhouib, Ahmed. 2005. "The Tunisian Experience." Presentation made at the CIEP (Centre International d'Études Pédagogiques) international conference, "Short-Term Vocational Higher Education: Challenges and Opportunities in the Context of Technological Change and Globalization," Paris, June 6–8.
- di Gropello, E., with H. Tan and P. Tandon. 2010. *Skills for the Labor Market in the Philippines*. Washington, DC: World Bank.
- Drucker, Peter. 2001. "The Next Society." *The Economist*. November 3.
- Edstats (database). World Bank, Washington, DC. <http://www.worldbank.org/education/edstats>.
- Ertl, Hubert, and Peter F. E. Sloane. 2004a. "A Comparison of VET Structures in Germany and England: Contexts of Complex Teaching-Learning Arrangements." In *New Approaches to Vocational Education in Europe: The Construction of Complex Learning-Teaching Arrangements*, Oxford Studies in Comparative Education, ed. Regina H. Mulder and Peter F. E. Sloane, 13–25 (Oxford, UK: Symposium Books).
- — —. 2004b. "The German Training System and the World of Work: The Transfer Potential of the Lernfeldkonzept." *bwp@* [online magazine, University of Hamburg, Germany], no. 7 (December). <http://www.bwpat.de/7eu/>.
- Ezzine, Mourad. 2007. "Skills Supply and Demand in the Middle East and North Africa." Presentation made at the World Bank seminar, "Stimulating Youth Employment in MENA," Washington, DC, December 5.
- Fasih, Tazeen. 2008. *Linking Education Policy to Labor Market Outcomes*. Washington, DC: World Bank.
- Friedman, Thomas, L. 2005. *The World is Flat: A Brief History of the Twenty-First Century*. New York: Farrar, Straus, and Giroux.
- Gardner, Howard. 2006. *Five Minds for the Future*. Boston: Harvard Business School Press.
- Global Development Indicators (database). World Bank, Washington, DC. <http://data.worldbank.org/data-catalog>.

- Grubb, W. Norton. 2002. "An Occupation in Harmony: The Role of Markets and Governments in Career Information and Career Guidance." Paper prepared for an OECD review of policies for information, guidance, and counseling services. OECD, Paris.
- — —. 2006. "Vocational Education and Training: Issues for a Thematic Review." Issues paper prepared for an OECD meeting of experts, Paris, France, November 9–10.
- Grubb, Norton, and Marvin Lazerson. 2004. *The Education Gospel: The Economic Power of Schooling*. Cambridge and London: Harvard University Press.
- Gulf News. 2007. "BAC Middle EAST Executive Recruitment." September 27.
- Hanushek, Eric A., and Ludger Wößmann. 2007. "Education Quality and Economic Growth." World Bank, Washington, DC.
- Hargreaves, Andy. 2003. *Teaching in the Knowledge Society: Education in the Age of Insecurity*. New York and London: Teachers College Press, Columbia University.
- Houghton, Ted, and Tony Proscio. 2001. "Hard Work on Soft Skills: Creating a 'Culture of Work' in Workforce Development." Public/Private Ventures, New York.
- Hujo, Katja, and Nicola Piper. 2007. "South-South Migration: Challenges for Development and Social Policy." *Development* [Society for International Development] 50 (4): 19–25.
- ILO (International Labour Organization). 2005. "Youth: Pathways to Decent Work Report." Report prepared for ILO Conference, 93rd Session, Geneva.
- — —. 2006. "Global Employment Trends." *ILO Brief* (January). ILO, Geneva.
- — —. 2007a. *Key Indicators of the Labor Market*. 5th ed. Geneva: ILO.
- — —. 2007b. "Portability of Skills." GB.298/ESP/3, 298th session. Committee on Employment and Social Policy, ILO, Geneva.
- IMF (International Monetary Fund). 2007. *World Economic Outlook 2007*. Washington, DC: IMF.
- Jarvie, Wendy. 2005. "Australia's Vocational Education and Training System and its Links with Secondary Education." Presentation at the conference, "Growth Strategies for Secondary Education in Asia," Kuala Lumpur, Indonesia, September 19.
- Johanson, Richard K., and Avril V. Adams. 2004. *Skills Development in Sub-Saharan Africa*. World Bank Regional and Sectoral Studies. Washington, DC: World Bank.
- Khang, Hyun-Sung. 2009. "Surviving the Third Wave." *Finance & Development* [IMF] 46 (4).

- Kim, Gwang-Jo. 2007. "Education and Development: The Case of South Korea." Presentation made at World Bank Institute course, "Education for Development and Competitiveness: Challenges and Opportunities for Post-Basic Education," Washington, DC, May 14–25.
- Kimes, Mina. 2009. "Get a Green Job in Two Years." *Fortune*, November.
- Lauglo, Jon, and Rupert Maclean. 2005. *Vocationalisation of Secondary Education Revisited*. Technical and Vocational Education and Training Series. Dordrecht, The Netherlands: Springer.
- Levy, Frank, and Richard J. Murnane. 2004. *The New Division of Labor: How Computers Are Creating the Next Job Market*. Princeton, NJ: Princeton University Press and Russell Sage Foundation.
- — —. 2005. "How Computerized Work and Globalization Shape Human Skill Demands." Paper prepared for the "First International Conference on Globalization and Learning," Stockholm, March 17–18.
- Liberation*. 2007. Employment Section. March 19.
- Manpower Inc. 2006. "Now/Next; A Manpower Report: The Changing World of Work." Manpower Inc., Milwaukee, WI.
- — —. 2010a. "Supply/Demand: 2010 Talent Shortage Survey Results." Manpower Inc., Milwaukee, WI.
- — —. 2010b. "Fresh Perspectives: Teachable Fit: A New Approach for Easing the Talent Mismatch." Manpower Inc., Milwaukee, WI.
- Mazeran, Jacques, with William Experton, Christian Forestier, André Guaron, Serge Goursaud, Albert Prévos, Jamil Salmi, and Frances Steier. 2007. *Short-Term Vocational Higher Education: A Global Challenge in Education*. Paris: Hachette Education.
- McGregor, Richard. 2006. "Up to the Job? How India and China Risk Being Stifled by a Skilled Squeeze—Employment—The World's Two Largest Labor Markets are Tightened Much More Rapidly than Expected." *The Financial Times*. July 20.
- OECD (Organisation for Economic Co-operation and Development). 2000. *OECD Economic Outlook*. Paris: OECD.
- — —. 2001. *OECD Education at a Glance*. Paris: OECD.
- — —. 2004. *Career Guidance and Public Policy: Bridging the Gap*. Paris: OECD.
- — —. 2005. "The Definition and Selection of Key Competencies: Executive Summary." OECD, Paris.
- — —. 2007. *PISA 2006: Science Competencies for Tomorrow's World*. Paris: OECD.

- Oliver, Katharine M. 2005. "Reform in Maryland: Achievement Matters Most." In Richard Kazis, "Remaking Career and Technical Education for the 21st Century," *Double the Numbers Series*, 38–40, Jobs for the Future, Washington, DC.
- Peters, Antoinette S., Rachel Greenberger-Rosovsky, Charlotte Crowder, Susan D. Block, and Gordan T. Moore. 2000. "Long-Term Outcomes of the New Pathway Program at Harvard Medical School: A Randomized Controlled Trial." *Academic Medicine* 75 (5): 470–9.
- Pillay, Gerald F. 2005. "Technical and Vocational Education Systems of Selected East Asian Countries: Singapore." Paper prepared for the South Asia Region, World Bank, Washington DC. Unpublished.
- Psacharopoulos, George, and Harry Anthony Patrinos. 2002. "Returns to Investment in Education: A Future Update." Policy Research Working Paper 2881. World Bank, Washington, DC.
- Psacharopoulos, George, and Maureen Woodhall. 1985. *Education for Development: An Analysis of Investment Choices*. New York: Oxford University Press.
- Quinley, John. W., and Melissa P. Quinley. 2000. "Four-Year Graduates Attending Community Colleges as Serious Credit Students." Community College/Cluster Connections. CCRC Brief 10. CCRC, Teachers College, Columbia University, New York.
- Ratha, Dilip. 2009. "Remittances in Development: A Lifeline to Poor Countries." *Finance & Development [IMF]* 46 (4).
- Reimers, Fernando. 2006. "Citizenship, Identity, and Education: Examining the Public Purposes of Schools in an Age of Globalization." *Prospects* 36 (3): 275–94.
- Republic of Korea, Ministry of Education and Human Resources Development (MOEHRD). 2008. "Education in Korea, 2007–2008." MOEHRD, Seoul.
- Riboud, Michelle, Yevgeniya Savchenko, and Hong Tan. 2007. *The Knowledge Economy and Education and Training in South Asia*. Washington, DC: World Bank.
- Ruzzi, Betsy Brown. 2005. "International Education Tests: An Overview, 2005." Paper prepared for the New Commission on the Skills of the American Workforce, National Center on Education and the Economy, Washington, DC.
- Ryan, Paul. 2001. "The School-to-Work Transition: A Cross-National Perspective." *Journal of Economic Literature* 34 (March): 34–92.

- Salmi, Jamil. 2005. "The Role of STVHE in Developing Countries: World Bank Perspective." Presentation made at the CIEP international conference, "Short-Term Vocational Higher Education: Challenges and Opportunities in the Context of Technological Change and Globalization," Paris, June 6–8.
- Samuelson, Robert. 2006. "How We Dummies Succeed." *Washington Post*, September 6.
- Somerville, Mark, D. Anderson, H. Berbeco, J. Bourne, J. Crisman, D. Dabby, H. Donis-Keller, et al. 2005. "The Olin Curriculum: Thinking Toward the Future." *IEEE Transactions on Education* [IEEE, New York, NY] 48 (1): 198–205.
- Sondergaard, Lars, and Mamta Murthi, with Dina Abu-Ghaida, Christian Bodewig, and Jan Rutkowski. 2012. *Skills, Not Diplomas—Managing for Results in Education Systems in Eastern Europe and Central Asia*. Directions in Development Series. Washington, DC: World Bank.
- United Kingdom, Department for Innovation, Universities, and Skills. 2007. "World-Class Skills: Implementing the Leitch Review of Skills in England." Report presented to Parliament by the Secretary of State for Innovation, University, and Skills by Command of Her Majesty, July 2007, London.
- UNDP (United Nations Development Programme). 2009. *Human Development Report 2009: Overcoming Barriers: Human Mobility and Development*. New York: UNDP.
- United States, Bureau of Labor Statistics, Department of Labor. 2010. "Number of Jobs Held, Labor Market Activity, and Earnings Growth among Youngest Baby Boomers: Results from a Longitudinal Survey." News Release USD-10-1243, September 10. Department of Labor, Washington, DC.
- Wang, Yidan. 2005. "Governance of Basic Education: Service Provision and Quality Assurance in China." World Bank Institute, Washington, DC.
- Watts, A. G., and David H. Fretwell. 2004. "Public Policies for Career Development: Case Studies and Emerging Issues for Designing Career Information and Guidance Systems in Developing and Transition Economies." Working Paper 28598. World Bank, Washington, DC.
- WBI (World Bank Institute). 2007. *Building Knowledge Economies: Advanced Strategies for Development*. Washington, DC: World Bank.
- Whitehouse, Mark. 2009. "Some Firms Struggle to Hire Despite High Unemployment." *The Wall Street Journal*. August 9.
- World Bank. 2002. *Constructing Knowledge Societies: New Challenges for Tertiary Education*. Washington, DC: World Bank.
- — —. 2003. *Lifelong Learning in the Global Knowledge Economy: Challenges for Developing Countries*. Directions in Development Series. Washington, DC: World Bank.

- — —. 2005. *Expanding Opportunities and Building Competencies for Young People: A New Agenda for Secondary Education*. Directions in Development Series. Washington, DC: World Bank.
- — —. 2006. *World Development Report 2007: Development and the Next Generation*. Washington, DC: World Bank.
- — —. 2007a. "Labor Market Vulnerability and the Role of Education." Human Development Network, World Bank, Washington, DC.
- — —. 2007b. "School and Work: Does the Eastern Caribbean Education System Adequately Prepare Youth for the Global Economy? Skill Challenges in the Caribbean: Phase I Paper." Report 38555. Latin America and Caribbean Region, World Bank, Washington, DC.
- — —. 2008. "Skills Development in India: The Vocational Education and Training System." Discussion Paper 22. South Asia Human Development Sector, World Bank, Washington, DC.
- — —. 2010a. "Education Service Contract Study: Philippines." World Bank, Washington, DC.
- — —. 2010b. *The Little Data Book 2010*. Washington, DC: World Bank.
- — —. 2011. "Learning for All: Investing in People's Knowledge and Skills to Promote Development; World Bank Group Education Strategy 2020." World Bank, Washington, DC.

World Development Indicators (database). World Bank, Washington, DC. <http://data.worldbank.org/data-catalog>.

Wulf, William A. 2005. "The Importance of Foreign-Born Scientists and Engineers to the Security of the United States." Statement before Subcommittee on Immigration, Border Security, and Claims, Committee on the Judiciary, U.S. House of Representatives, at hearing on "Sources and Methods of Foreign Nationals Engaged in Economic and Military Espionage," Washington, DC, September 15.

Wyn, Johanna, Helen Stokes, and Debra Tyler. 2004. "Stepping Stones: TAFE and ACE Program Development for Early School Leavers." Australian National Training Authority, Adelaide.

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