



Lifelong Learning in the Global Knowledge Economy: *Challenges for Developing Countries*¹

A knowledge-based economy relies primarily on the use of ideas rather than physical abilities and on the application of technology rather than the transformation of raw materials or the exploitation of cheap labor. Knowledge is being developed and applied in new ways. Product cycles are shorter and the need for innovation greater. Trade is expanding worldwide, increasing competitive demands on producers.

The global knowledge economy is transforming the demands of the labor market in economies throughout the world. It is also placing new demands on citizens, who need more skills and knowledge to be able to function in their day to day lives.

Equipping people to deal with these demands requires a new model of education and training, a model of lifelong learning. A lifelong learning framework encompasses learning throughout the life cycle, from early childhood to retirement. It encompasses formal learning (schools, training institutions, universities), nonformal learning (on-the-job and household training), and informal learning (skills learned from family members or people in the community). It allows people to access learning opportunities as they need them rather than because they have reached a certain age.

Lifelong learning is crucial to preparing workers to compete in the global economy. However, it is important for other reasons as well. By improving people's ability to function as members of their communities, education and training increase social cohesion, reduce crime, and improve income distribution.

Developing countries and transition economies risk being further marginalized in a competitive global knowledge economy because their education and training systems are not equipping learners with the skills they need. To respond to the problem, policymakers need to make crucial changes. They need to replace the information-based, teacher-directed rote learning provided within a formal education system governed by directives with a new type of learning that emphasizes creating, applying, analyzing, and synthesizing knowledge and engaging in collaborative learning throughout the lifespan. This article describes several different ways in which they can do this.

Creating a Labor Force Able to Compete in the Global Economy

In traditional industries most jobs require employees to learn how to perform routine functions, which, for the most part, remain constant over time. Most learning takes place when a worker starts a new job. In the knowledge economy, change is so rapid that workers constantly need to acquire new skills. Firms can no longer rely solely on new graduates or new labor market entrants as the primary source of new skills and knowledge. Instead, they need workers who are willing and able to update their skills throughout their lifetimes. Countries need to respond to these needs by creating education and training systems that equip people with the appropriate skills.

The private sector is playing a growing role in education throughout the world

Traditionally, the public sector provided most education services. Today that is changing. In many middle-income countries, the private education sector is growing, fostered by the poor quality and coverage of public education and the need to relieve fiscal burdens and promote innovation. In Brazil, since 1995 the number of students enrolled in higher education has grown more than 70 percent, with most of this growth occurring in private colleges and universities, which now account for 71 percent of higher education enrollment. In China, 500 new institutions of higher learning were established between 1995 and 1999.

The private education sector is growing rapidly in transition economies as well. Poland alone has 195 private higher education institutions, which educate more than 377,000 stu-

dents. Private business schools—unheard of in Eastern Europe 10 years ago—are also thriving: in 1998 there were 91 private business schools in Poland, 29 in the Czech Republic, 18 in Romania, and 4 in Bulgaria.

At the same time, new providers—private sector training, virtual universities, international providers, corporate universities, educational publishers, content brokers, and media companies—have arisen to complement and challenge traditional institutions. This growth of the private sector reflects the rising demand for more and better education as well as dissatisfaction with the traditional education and training system.

Spending on training has increased dramatically

Corporations are spending more and more on training to become or remain competitive in the global knowledge economy. Worldwide, corporate training expenditures will increase to \$28 billion by the end of 2002, up from \$18 billion in 1997. The corporate training market in China alone is estimated at \$1 billion and is estimated to grow to \$5 billion by 2004.

Transforming Learning to Meet Learners' Lifelong Needs

Being successful in the knowledge economy requires mastering a new set of knowledge and competencies. These include basic academic skills, such as literacy, foreign language, math, and science skills and the ability to use information and communication technology. Workers must be able to use these skills effectively, act autonomously and reflectively, and join and function in socially heterogeneous groups.

Developing countries and transition economies have not been very successful in providing people with the knowledge and competencies they need

Education is inadequate in most developing countries. Coverage is insufficient, access is inequitable (especially in tertiary education and in employee and adult training), and the quality of education is poor. Adult literacy rates are low, and too few children complete basic education. International assessments of secondary school students in mathematics and science show developing and transition economies trailing significantly, especially when students are tested on their ability to apply and use knowledge. In the transition economies of Europe and Central Asia, the quality of education is inadequate and the education system is too rigid. Rote learning, exam-driven schooling, and the soaring cost of private education have long been policy concerns in some Asian countries.

Traditional education methods are ill suited to providing people with the skills they need to be successful in a knowledge economy

The traditional learning model differs from lifelong learning methods in important ways. **(Shown by the table below)**

Teacher training needs to change

This new learning context implies a different role for teachers and trainers. Teachers need to learn new skills and become lifelong learners themselves to keep up to date with new knowledge, pedagogical ideas, and technology. As learning becomes more collaborative, so too must teachers' professional development, which needs to promote professional networks and learning organizations within schools and institutions.

Traditional Learning model	Lifelong Learning
<ul style="list-style-type: none"> The teacher is the source of knowledge. 	<ul style="list-style-type: none"> Educators are guides to sources of knowledge.
<ul style="list-style-type: none"> Learners receive knowledge from the teacher. 	<ul style="list-style-type: none"> People learn by doing.
<ul style="list-style-type: none"> Learners work by themselves. 	<ul style="list-style-type: none"> People learn in groups and from each other.
<ul style="list-style-type: none"> Tests are given to prevent progress until students have completely mastered a set of skills and to ration access to further learning. 	<ul style="list-style-type: none"> Assessment is used to guide learning strategies and identify pathways for future learning.
<ul style="list-style-type: none"> All learners do the same thing 	<ul style="list-style-type: none"> Educators develop individualized learning plans.
<ul style="list-style-type: none"> Teachers receive initial training plus ad hoc in-service training. 	<ul style="list-style-type: none"> Educators are lifelong learners. Initial training and on-going professional development are linked.
<ul style="list-style-type: none"> "Good" learners are identified and permitted to continue their education. 	<ul style="list-style-type: none"> People have access to learning opportunities over a lifetime.

New information and communication technologies (ICTs) can support these changes in pedagogy and teacher training—given the appropriate policy framework

ICTs can facilitate learning by doing (through computer simulations, for example). They can vastly increase the information resources available to learners, thereby changing the relationship between teacher and student. They can facilitate collaborative learning and provide rapid feedback to learners.

These outcomes do not emerge simply by introducing computers into the learning setting, however. An appropriate policy framework is needed in which ICTs are used to tackle educational problems, significant investment is made in training teachers and managers to change their knowledge and behavior, qualified technicians and support staff are available, and funding for maintenance, access to the Internet, and upgrading is sustainable. These conditions are rarely met, especially in developing countries.

Formal education institutions need to become more flexible

Increasingly tertiary institutions are offering part-time, evening, weekend, and summer courses to meet the needs of working adults. In Finland, the number of adults enrolled in continuing education programs at the tertiary level exceeds the number of young people enrolled in traditional degree courses.

Distance education is one way in which countries can offer more flexible learning opportunities. Many countries use interactive radio instruction in basic education. Mexico uses television to educate about 15 percent of its lower secondary school students. In the 1990s the National Teachers Institute in Nigeria graduated more teachers through its distance learning program than all other programs in the country combined. The Internet is beginning to transform higher education and corporate training. In 1999, for example, 92 percent of large corporations in the United States piloted Web-based training programs.

Governing a Lifelong Learning System

To create effective lifelong learning systems, countries need to make significant changes to both the governance and financing of education and training. In many OECD countries governments that once focused exclusively on public financing and public provision of education and training are now trying to create flexible policy and regulatory frameworks that encompass a wider range of institutional actors. These frameworks include legislation and executive orders, arrangements for ensuring coordination across ministries and other institutions involved in education and training activi-

ties, and mechanisms for certifying the achievements of learners, monitoring institutional and system performance, and promoting learning pathways. Within this framework, the role of incentives is critical.

The public sector can no longer be the sole provider of education

The state will have to cooperate much more with the private sector and civil society. The private sector can provide education in both traditional ways (owning and operating private schools and providing inputs, such as books, materials, and equipment) and newer ways (operating public schools under contract). Enterprises also provide training and increasingly, for example, are involved in developing occupational standards and curricula.

Government ministries need to coordinate their activities

Nationally negotiated agreements and ongoing collaboration between central, regional, and local governments in implementation are needed. In some countries, including Germany and the Republic of Korea, coordination has been promoted by merging the departments responsible for education and training. In contrast, in many developing countries, many ministries, including industry-specific ministries, oversee, manage, and finance training. Competition for scarce resources in these countries prevents collaboration, promotion of high-quality training, and the development of a continuum of training opportunities.

Certification and quality assurance systems are needed to assess learners and inform them about providers

The outcomes of learning must be monitored effectively. Quality assurance systems need to recognize the range of settings, both formal and informal, in which learning takes place, and they need to provide opportunities for learners to demonstrate their newly acquired skills and knowledge. Quality assurance systems also need to provide prospective learners with information about the offerings and performance of providers.

Quality assurance systems can also make it easier for learners to move between different types and levels of learning environments. Namibia, New Zealand, South Africa, and the United Kingdom have national qualification systems, which assign qualifications from different institutions to a set of levels, with each level linked to competency standards. Students at colleges and universities in the United States can transfer credits from one institution to another. In addition, the Bologna process is moving toward Europe-wide agreement on equivalence and quality assurance mechanisms.

Policy makers need to rethink accreditation of institutions

The OECD and some developing countries are beginning to accredit institutions on the basis of output or performance measures (such as graduation rates) rather than on input measures (such as the number of faculty or books in the library). In Bangladesh, for example, private secondary schools must achieve certain pass rates on the university entrance examination to remain accredited (although this regulation is rarely enforced). In Armenia, private (but not public) higher education institutions must achieve a certain percentage of passes in the final examination (currently 50 percent). Increasingly, funding of institutions is also based on performance.

Financing Lifelong Learning

More and higher-quality education and training opportunities over a lifetime will require increased expenditures, although resources will also need to be used more efficiently and in different ways. These expenditures cannot be met solely from public sources, but a menu of options is required that is sustainable and equitable.

The private and public sectors need to work together to finance learning beyond the basic competencies

Governments need to finance lifelong learning for which social returns exceed private returns (for example, basic education). The private sector needs to play a role in financing investments for which private returns are high (for example, most higher and continuing education). Government intervention beyond the basic skills and knowledge should be targeted to learners from low-income or socially excluded groups and others with high barriers to learning.

No single financing system can serve the needs of all learners

Policy makers need to consider a range of financing options, including subsidies, mortgage-type loans, human capital contracts, graduate taxes, income-contingent repayment schemes, entitlement schemes, asset-building schemes, and individual learning accounts. Whatever mechanisms are used, financing of learning beyond the basic competencies should include both cost-sharing and subsidy components. Subsidies could be the main source of financing for low-income learners. For higher-income groups, most financing could take the form of income-contingent loans at market interest rates.

Agenda for the Future

The demands of a lifelong learning system are enormous, and most countries will not be able to implement all elements of the system at once. Countries must therefore develop a strat-

egy for how to move forward in a systematic and sequenced fashion. An important step is to identify where a country stands, particularly with respect to its international peers.

National systems of lifelong learning need to be benchmarked

One way in which countries could move forward would be by establishing national benchmarks for measuring lifelong learning outcomes. Such measures are underdeveloped. Traditional measures of educational progress, such as gross enrollment ratios and public spending as a proportion of GDP, do not capture important dimensions of lifelong learning. Gross enrollment ratios measure inputs rather than achievement of core or other competencies. Total education spending includes more than just public spending. Traditional indicators also fail to capture learning in the nonformal and informal sectors, which is becoming increasingly important.

A Different Approach to Education Reform Is Needed

Continuous reform is needed not only to accelerate the pace of reform but also to deepen the extent to which fundamental transformations of learning are carried out. The traditional model of education reform, however, is not amenable to constant change: a stream of initiatives and policy changes are seen as overwhelming to education stakeholders and reform fatigue and then resistance sets in. Institutions must, therefore, build reform and change into their own processes. In addition, policy changes need broad support and dialogue to facilitate ongoing adjustments during implementation.

The World Bank will continue to deepen its understanding and help countries develop concrete strategies

There is a need to engage national policy makers and stakeholders worldwide in a dialogue on lifelong learning, helping governments formulate visions and concrete action plans for establishing both lifelong learning and innovation frameworks appropriate to their country contexts. The World Bank can help in this effort by working toward deepening the understanding of the implications of the knowledge economy for education and training systems and disseminating analytical and policy documents on education for the knowledge economy.

Further Information

<http://www1.worldbank.org/education/>

¹ This article is an Executive Summary of a forthcoming World Bank Report that was prepared by a team led by Toby Linden and Harry Anthony Patrinos, who worked under the general direction of Ruth Kagia and the immediate supervision of Jamil Salmi. Team members included David Herbert Fretwell, Richard Hopper, Kyriakos Georgiades, Gwang-Jo Kim, Yoshiko Koda, Kathrin Plange-man, Shobhana Sosale, Masako Uchida, and Ayesha Vawda.