What Works in Youth Employment: The Impact of New Information Technologies

International Youth Foundation®

In cooperation with

NOKIA
CONNECTING PEOPLE

Table of Contents

“By whatever measure you choose, science and technology came to dominate the human project in the twentieth century. Public health more than doubled the average lifespan. The discovery of how to release nuclear energy made world-scale war suicidal. Birth control subdued the Malthusian multiplication of human population. Agriculture fed the multitudes. Electronics wired the world and put human communication beyond the reach of tyranny. Manned vessels of discovery cast off beyond the earth; automated voyagers—notes in high-tech bottles—even escaped the solar system. At the same time, human activities drove a catastrophic decline in species diversity and began global warming; from a wild place the earth became a garden, well tended in some districts, ruthlessly exploited in others. ”

Richard Rhodes in *Visions of Technology*

I am pleased to launch the International Youth Foundation's (IYF) new "What Works" series with a publication on youth and technology. The nature of global change and the speed of technological advances are transforming the way we live and work. Young people entering the work force now and in the years ahead face a world of constant change, where success is measured by their ability to learn quickly, to adapt to market shifts, to think independently, and to apply their knowledge across geographic and cultural boundaries. This is a challenging prospect, but also an opportunity to prepare new generations with the skills required to lead productive and meaningful lives in the 21st century. We are grateful to author Laurie Regelbrugge for her rich insights into this complex, far-reaching topic.

Young people entering the work force now and in the years ahead face a world of constant change, where success is measured by their ability to learn quickly, to adapt to market shifts, to think independently, and to apply their knowledge across geographic and cultural boundaries.

IYF is working in partnership with local organizations in more than 40 countries to improve the prospects for young people — to improve their odds. Our strategy is to identify effective youth development programs, to help them build their capacity to become sustainable, and to help them reach greater scale. The value of this network can be measured — not only in terms of its economic investment and positive impact in hundreds of communities — but also in terms of its collective knowledge and experience. IYF's global network of partners is a repository of knowledge about the trends, issues, policies, and programs affecting the lives of children and youth.

Consequently, IYF's "What Works" publication series aims to collect the lessons of IYF and its partners and disseminate these lessons broadly. Our goal is to create learning for impact — knowledge that produces tangible improvements in the lives of children and youth. This first issue of "What Works" is sponsored jointly with Nokia through the Nokia/IYF "Make a Connection" program, an initiative to develop young people's skills as leaders, volunteers, workers, and citizens.

What Works in Youth Employment: The Impact of New Information Technologies asks practitioners — as well as policy makers, educators, and others who can influence the youth development field — to explore the challenges of "preparing young people to fill jobs that have not yet been imagined with tools that have not yet been created." The publication addresses the following topics:

- The historical context and scope of youth employment
- General trends shaping job markets
- Job market shifts resulting from technological advances
- The impact of such shifts on youth employment opportunities

- New training requirements for youth
- The evolving implications of the "digital divide" and potential solutions
- The potential roles of the public, private, and civil society sectors in ensuring that advances in new technology enhance the job prospects of young people around the world

The report explores the global employment context faced by today's young people. In particular, it examines how information technologies are transforming the world and employment and livelihood opportunities, and what the implications of these changes are for young people growing up in a variety of national and social contexts. Although several examples are drawn directly from the information technology industry, the report looks at other sectors as well. It also explores how government, business, and civil society can and must work together to create more effective policies and programs to meet the challenge of preparing young people to fulfill the social, economic, and civic roles they need them to play.

Our hope is that this report will be particularly useful for those engaged in supporting youth development and youth employment and livelihood programs. It is also intended to prompt all of us to think about how we can play a role in improving the opportunities and quality of life that young people experience.

Rick R. Little
Founder and President
International Youth Foundation

The report explores the global employment context youth face. In particular, it examines how information technologies are transforming the world and employment opportunities and what the implications of these changes are for youth growing up in a variety of national and social contexts.

The experience and knowledge youth gain in their initial employment situations lay the foundation for their life of work and learning. These employment experiences also influence how they play their role in society as community members, citizens, parents, and public servants.

How are technological advances transforming the world of opportunity for our youth? How can we ensure youth everywhere are able to seize the opportunities and thrive in a world characterized by rapid change, while simultaneously ensuring that they are prepared to make decisions and act in ways that are consistent with longer-term social/public interest?

The challenge of youth employment in the 21st century and beyond is daunting and humbling. Essentially, the challenge is to prepare people to fill jobs that have not yet been imagined, using tools that have not yet been created, to address problems and issues that either have not yet surfaced or have defied solutions over hundreds and thousands of years.[1]

How can we meet this challenge? What tools are fundamental to preparing youth adequately for the world in which they will live and work? Perhaps the most important tools and skills are basic literacy (reading, writing), facility with numbers (math/numeracy), basic scientific knowledge, and the ability to work with other people—to understand and navigate within and across cultures. Youth employment policies and programs can foster these fundamental skills and provide exposure, stimulation, and opportunities that allow young people to extend their abilities from this foundation. To embrace the challenge of youth employment in the 21st century and beyond, learning and the application of knowledge become central to any vision and promising practices in youth employment. Thus, several key goals for youth employment activities emerge.

- *Promote basic education:* reading, writing, math, and science
- Help youth learn *how to learn* (how to gather, process, and use information; how to generate and apply knowledge; how to make use of available tools and technologies in support of learning; communication skills)
- Encourage youth to *use all of their senses*
- Give youth opportunities to *learn by doing*
- Challenge youth to *apply their knowledge and link their experience* across boundaries, locally, and to the larger world context and society generally
- Challenge youth to *reason, recognize patterns, question patterns, analyze information, and think critically*

[1] This description of the challenge is a synthesis of statements from speeches by and emerging from the author's conversations with Jordan Baruch, Assistant Secretary for Science and Technology in the United States Department of Commerce during the Carter Administration (1977-1981). Dr. Baruch has also been actively involved since 1977 with officials and practitioners in developing countries as they devise science and technology policy and programs.

- Inspire and support youth to *take responsibility for their learning, apply the learning in life, and face the consequences of action*
- Help youth *gain universally needed knowledge and skills*
- Help youth *learn from others and learn to work with others*
- Help youth *develop their abilities to make decisions and take risks*

Considering youth employment in the context of new and emerging technologies is an exciting and humbling proposition. There are extraordinary new tools for working together and sharing knowledge in the present, across barriers of distance and time, language and discipline. Many of the tools help us anticipate—and shape—the future and better learn from the past. These tools are fueling an explosion of possibility in high-tech careers in such areas as telecommunications, biotechnology research, and software engineering. At the same time, these tools are also transforming the character of many so called low-tech careers in such areas as auto mechanics, food service, and agriculture.

The experience and knowledge youth gain in their initial employment situations lay the foundation for their life of work and learning. These employment experiences also influence how they play their role in society as community members, citizens, parents, and public servants. Therefore, any approach to youth employment—policy and practice—is of paramount importance. Through youth employment opportunities and practices our societies send (and youth receive) clear messages about what young people need to know and learn, we establish and reinforce patterns of expectation and behavior, and we lay a foundation for their careers and citizenship. One challenge for those designing and supporting youth employment opportunities is to consider this range of issues explicitly.

Through youth employment opportunities and practices our societies send (and youth receive) clear messages about what young people need to know and learn, we establish and reinforce patterns of expectation and behavior, and we lay a foundation for their careers and citizenship.

Today, we have the largest human population ever. The population has more than doubled in only the last 50 years—from about 2.5 billion people in 1950 to more than 6 billion in 2000—and the growth rate has escalated (one billion were added in just the last 12 years).[2] "More than one billion people of the six billion in the world are between the ages of 10 and 19."[3]

Technological advances have transferred more power and potential to individuals – both constructive and destructive power and potential. Have we correspondingly inspired within individuals an increased sense and practice of responsibility? Have we developed people's skills to exercise this expanded individual power responsibly? Although difficult, this larger mandate for responsible use of expanded individual power must find expression in youth employment policies and practices in the 21st century.

[2] Data from the United Nations (miscellaneous sources) and the World Bank Atlas, The World Bank, Washington, DC, U.S.A., 2000.

[3] *The State of the World's Children 2000,* United Nations Children's Fund (UNICEF), New York, New York, U.S.A., 2000, p. 42.

What can we learn from the long history of youth employment? Youth, ages 15 to 24, are extremely energetic and productive, they are quick learners, they are talented and resourceful, and physically they are at or near their strongest, most agile stage in life. In short, youth are extremely able workers.

In most of the world, young people constitute a large portion of the labor force – and they always have. From the earliest times, youth have been highly productive members of society, contributing to their families and communities' well being through their economic and social activity. Historically, and still today, young people in this age range have been among their communities' finest workers and have played critical roles in public life. Societies with hunting, gathering, subsistence, agricultural, and industrial economies have all made broad use of youth labor. The Information Age/knowledge era promises to be no different.

Even in the most industrialized countries, it is only in the last 50 to 100 years that we have relieved many youth of expectations to contribute substantial portions of a family's income and labor. In these countries, we have deliberately adopted youth policies aimed at nurturing their personal development through further education and postponing economic activity until later. In essence, this is a deferred income strategy: forego income today with expectations of higher returns tomorrow through a strategy of educational investment. The strategy replaces, or complements, several years of youth employment with intensive education, promotes and enhances the overall health and development of the young people, and supports their career preparation.

This strategy has taken root and is available for ever-growing numbers of young people throughout the world, as evidenced through vast expansions in higher education infrastructure and programming. Nevertheless, the education investment strategy still correlates closely with income levels. In most countries higher education remains accessible primarily to a society's more elite or highest income tiers. It is less accessible to lower income populations.

Alongside the income or class gap there is a gender gap. Of the roughly 150 million school-aged children in developing countries who are not in school, about 60 percent are young women and girls, many of whom "are saddled with domestic obligations and household chores," limited by traditional expectations, live too far from schools, or are forced to work outside the home to expand family income.[4]

[4] Ibid., pp. 56-57.

Therefore, youth remain a vital, and even growing, portion of the world's labor force. Despite this substantial involvement in the world's workforce and their corresponding contribution to global GNP, youth typically are accorded fewer rights, less autonomy and respect, and less control over their work environment and incomes than their older counterparts. We take youth employment and labor largely for granted; we pay youth lower wages, which we justify by their lack of experience; we often ask them to work longer hours in extremely difficult or dangerous conditions; we often assign to them the most menial, least interesting tasks; and, at times, we force them to work against their will or consent. We may not take their ideas or suggestions seriously and often are quite condescending in our treatment and interaction.

Youth worldwide often seek employment not by choice, but by necessity—they and their families could not survive without their earnings. At times there is a coercive element whereby youth are essentially forced into labor, whether due to family need or through organized networks and systems of exploitation. There are horrific statistics and stories outlining the vast scope of child labor (children younger than 15). A haunting legacy of systemic child labor is that these children enter their youth years conditioned to work in difficult circumstances, for low pay, and with little or no educational stimulation and support, all of which severely limit their access to and options for advancement in healthier and more rewarding occupations. The effects of forced labor on young peoples' emotional, physical, spiritual, and civic development are similarly alarming.

Although the scope of youth employment worldwide is vast, many countries maintain structural barriers to youth employment. For example, there are countries with social welfare arrangements that favor and protect older workers and raise barriers for new workers. Protecting older workers is important. But to do so at the expense of younger workers—who likely have little voice or influence in designing public policy—limits young people's development and may impede their ability and motivation to contribute positively to society. Deregulation and policy flexibility could enhance the effectiveness of youth employment at many levels: for individual young people, for companies and organizations that employ them, and for communities more generally.

What can we learn from the long history of youth employment? Youth (ages 15-24) are extremely energetic and productive, they are quick learners, they are talented and resourceful, and physically they are at or near their strongest, most agile stage in life. In short, youth are extremely able workers. They are also impressionable. Youth can do a wide range of delicate, important, dangerous,

creative, and difficult tasks and assignments, in virtually any sector. Youth can fulfill vital responsibilities with commitment and creativity. This age group provides the backbone of the military services worldwide, as well as being prominent in mining, heavy and light industrial and garment manufacturing, basic services, agricultural production, and in the high tech industry. "Adolescents [and older youth] have a profound and direct influence on the next generation because of their roles as older siblings, heads of households, parents, and members of civil society…They represent one of any society's most underutilized resources."[5]

[5] Ibid., p. 42.

The scope and rapid pace of technological development in the last century provided a vast range of new tools that have transformed how we interact, live, work, learn, and play, through linking people globally and inextricably in a new era of interdependent citizenship.

Globalization—the process of linking the social and economic activity of people in different parts of the world that began thousands of years ago through early population migrations and trade—is having a profound effect on job markets. International capital flows and mobility have enabled businesses to shift operations worldwide and produce their commodities and services where they can access raw materials, minimize their overall labor costs, develop and serve markets. In the last two centuries, industrialization has transformed much of Western and Northern Europe, North America, and parts of Asia and the former Soviet Union; but it is only in the last 50 years, and in many places far more recently, that substantial commercial and industrial investment have taken root in much of the developing world.

Globalization is affecting the world's population and natural resource base profoundly, though its effects, benefits, and implications are neither experienced nor distributed evenly.

After World War II, foreign aid flows dominated investments in industrial capacity and infrastructure in developing countries. In the last 10 to 15 years private commercial investment has dwarfed development assistance. Companies are investing in productive capacity and partnerships globally to maximize their production and profits while minimizing their costs. Globalization is affecting the world's population and natural resource base profoundly, though its effects, benefits, and implications are neither experienced nor distributed evenly. The African continent as a whole receives the lowest levels of investment. Though it remains an important source for a wide range of natural resources and raw materials, the continent sustains the highest overall levels of poverty and external debt, highest rates of infant mortality, and low levels of education, family income, and GNP.

Globalization was fueled and facilitated in the 20th century by broad use of transportation, industrial, communication, and information technologies. Although writing and its instruments have long allowed people to communicate across distance and time, the communication and information technology advances of the last 50 to 150 years are astounding. The telephone allows people anywhere in the world to have "real time" conversations and interaction. Radio and television provide vast broadcasting capability for information. Computer technologies allow individuals to collect, store, access, and use huge amounts of

information and data. Internet and web technologies facilitate information gathering, sharing, and interaction. Below are other examples of technology's impact:

■ *Information technologies* are helping us explore, understand, and document our human and natural world with ever increasing precision and depth – ranging from how the human body operates to what is occurring in the deepest recesses of sea and space.

■ *Medical technologies and knowledge,* ranging from vaccines and life support systems to understanding the benefits of clean drinking water and nutrition, are extending lifespan dramatically.

■ *Transportation technologies* allow people and materials to be moved anywhere in the world in a matter of hours or days instead of weeks and months.

■ *Applications of technology for military and defense* purposes have greatly enhanced the destructive capacity and potential of individuals and nations: lighter-weight guns enable small children to become soldiers (a grim reality in many parts of the world and a growing portion of overall youth employment), nuclear weapons and launching technologies allow armies and individuals to decimate structures, or populations if they so desire, from afar, without hand-to-hand combat.

■ *Satellites and sophisticated monitoring systems* allow us to witness, map, and monitor global social activity and environmental trends such as desertification and the rapid destruction of the planet's rainforests, thereby providing valuable information to guide action to curb these trends.

The scope and rapid pace of technological development in the last century provided a vast range of new tools to use in life, work, education, and play. These tools have largely transformed how we interact (collaborate/fight), live, work, learn, and play, through linking people globally and inextricably in a new era of interdependent citizenship. Evidence of the transformation is readily apparent in all spheres: social, cultural, economic, and environmental.

■ *24-7-365* — Production around the clock (24 hours/day, 7 days/week, 365 days/year) around the world.

■ *Innovation and Competition* — Intense pace of innovation and competition.

■ *Capitalism* — Omnipresence of capitalism, free enterprise, and market economics.

■ *Accelerated pace and speed*— Just-in-time production and accelerated speed, and corresponding expectation for speed, in every aspect of the production cycle and distribution of products, services, and information.

■ *Emergence of global actors and movements*— Transnational and global companies, multilateral institutions and forums (e.g., United Nations, World Bank, World Trade Organization), civil society (e.g., nongovernmental organizations, charitable foundations, citizen associations, labor unions), and campaigns for human rights, environmental protection, and conservation.

■ *Cultural interaction, exchange, and hybrids*— Examples include global relief efforts, global youth culture (music, clothing, games, food), artistic fusion, linguistic hybrids such as "le snac bar" and new words or expressions formed with parts taken from different languages, a global athletics industry, the education industry and university/research partnerships, and global conferences.

■ *Broad-scale development interventions*— Development interventions, such as family planning, electrification, vaccination and disease eradication efforts, within countries and across regions and continents.

■ *Labor mobility and a changing employment contract*— One country's brain drain dilemma is another country's multicultural workforce bounty, and "lifetime employment" systems giving way to individuals or governments having to assume greater responsibility for their job preparation, training, employment, and benefits such as pensions and health care.

■ *Devolution and diffusion of knowledge*— Doctors claim that the biggest change in their profession is that patients come armed with knowledge. Walls between disciplines and areas of specialization are becoming more porous, allowing for more cross-fertilization.

Whether one considers a longstanding industry such as mining or a newer industry such as digital imaging or network communication, information technologies are providing vast new resources and tools for improving worker and environmental safety, customizing production, monitoring performance, reducing costs, collaborating with others, collecting and interpreting data for deeper knowledge and understanding of implications, and simulating and testing design and performance in ways that reduce costs, accidents, and development cycles.

The vast technological advances of the 20th century have yielded major and minor shifts in labor markets. Those mentioned here are by no means comprehensive, but they are illustrative. Examples are included to make the shifts and their corresponding implications more apparent. Job markets worldwide will continue to change as long as the pace of technological advances continues unabated.

Examples of Specific Job Market Shifts

■ Labor-intensive industries and industries that can substitute cheap labor for more expensive production equipment are locating in or shifting to areas where labor costs are cheaper. Garment manufacturing, for example, is increasingly concentrated in parts of the world where assembly, tailoring, and finishing are completed by low-wage workers. Labor and financial capital are mobile.

Example: There has been a vast increase in the availability of garments and light manufactured goods (e.g., children's toys, apparel, housewares and small appliances, basic machine tools) from China due largely to the low wage structure, influx of financial capital, and expansion of trade relations; shoes, garments, and recreation equipment are produced throughout South and East Asia where wage rates are lower (e.g., Bangladesh, Thailand, Malaysia).

■ Specific jobs are being transformed. Many jobs are becoming more oriented toward monitoring and trouble-shooting (using computers and information technologies) and less oriented toward direct physical labor-oriented tasks in production. There is increased use of information technology generally.

Example: Auto mechanics use more diagnostic tools and information, mining companies have monitoring equipment to help reduce and prevent accidents and to locate desired

Labor-intensive industries and industries that can substitute cheap labor for more expensive production equipment are locating in or shifting to areas where labor costs are cheaper. Garment manufacturing, for example, is increasingly concentrated in parts of the world where assembly, tailoring, and finishing are completed by low-wage workers.

resources, assembly line workers monitor computers that track robotic production and assembly, airline pilots engage "auto pilot" systems, and doctors use sophisticated sonogram/radiology equipment to monitor the development of a human fetus during a woman's pregnancy.

■ The shifts to information-oriented jobs require the workers in question to have more understanding of processes and often greater technical knowledge with which to identify and diagnose problems and, subsequently, to solve them. Sometimes use of the equipment itself requires greater scientific or technical knowledge and facilitates learning. Yet, some jobs are becoming less "brainy."

Example: Typesetting requires greater math skills than desktop publishing requires, a person who does not necessarily understand basic arithmetic functions can use a calculator to add and subtract, elaborate textiles can be produced with the help of automated equipment production by workers with little direct knowledge or skills in sewing or tailoring.

■ Some jobs are becoming obsolete or changing profoundly, while new kinds of jobs are being created.

Example: The secretarial profession is changing dramatically as a result of voicemail, email, automated telephone reception, and word processing, all of which eliminate (or transfer) intermediary roles that secretaries once performed. The security profession has incredible new monitoring equipment (cameras, motion detectors, computer-monitored access), and must now meet a high demand for new kinds of protection. Protecting physical property and workers remain important, but security services are increasingly oriented toward protecting intellectual property too (e.g., data, trade secrets, production processes, conceptual frameworks).

■ Increased automation and labor substitution are occurring in almost every industry, though the pace of adopting labor-saving equipment is slower in developing countries than in industrialized countries. Three primary factors dictate this pace differential: 1) the cost of procuring, servicing, and maintaining the equipment is often far higher in developing (debt-plagued) countries that have less infrastructure and where technical expertise and products are less readily available; 2) lower labor costs can offset the advantages of investing in expensive

capital equipment in some places while higher labor costs in another place give ample incentive for investing in labor-saving capital equipment and automation; and 3) cultural values, preferences, and societal structures influence the pace of automation adoption.

Example: Japanese industry has embraced automation with great enthusiasm — it helps address the labor shortages and demographics. Countries with strong labor unions have typically had a slightly slower pace in adopting labor-substituting equipment — examples could be cited from different industries in Germany, Canada, and the United States — but cost and competitive pressures have challenged the strength of labor unions and these countries are now automating with growing enthusiasm. Countries with vast inexpensive labor resources have the slowest rates of automation adoption.

Many industries are shifting from using large numbers of lower-skilled workers to having smaller numbers of higher skilled workers.

- Many industries are shifting from using large numbers of lower-skilled workers to having smaller numbers of higher-skilled workers. This is true in automobile manufacturing, steel and chemical production, and certainly in the high tech industries.

Example: Hitachi's state-of-the-art electron tube manufacturing facility in Greenville, South Carolina, is "assembly line manufacturing." But its similarities with traditional assembly lines are few. In much of the operation, one or a few employees monitor computers and diagnostic equipment as components move from station to station in dimly lit, quiet rooms, with high tech instruments performing tasks human workers could not even do by hand.

- Other industries are achieving improved productivity through the use of specific technologies that reduce the need for labor.

Example: Just as the cotton gin dramatically reduced the need for labor at harvest time, so agricultural chemicals (pesticides, herbicides, fertilizer) and advances in agricultural knowledge (growing cycles, genetics, soil resilience) have achieved vast productivity gains per hectare/acre without increased labor. Though agricultural production remains highly labor intensive in some places, clearly there has been a dramatic reduction in the portion of the world's population involved directly in producing food and other agricultural products. This trend also results in reduced possibility for subsistence living and in continued growth in urban migration and urban poverty.

- Within the service industry, there are pockets of transformation and other areas of little change.

Example: Health care services and disease prevention knowledge have been transformed. The tourism industry has flourished through the use of global advertising, marketing, traveler profiling and analysis, reservation systems, sophisticated financial

programming and credit (supported by information systems), and in-depth educational and touring information. While large-scale institutional food service has benefited from microwave and refrigeration technologies, improved transportation, and inventory tracking and ordering systems, a great deal of food service through restaurants has changed very little. Fast food, ready-to-eat, and prepared food alternatives have increased, largely as a result of the faster-paced, more hectic schedules many of the world's workers maintain. Janitorial services use new tools, but otherwise have changed very little in their general character and use of labor. Educational services are beginning to be transformed as a result of distance-learning technologies, the Internet, and the world wide web. Within just a few more years we are likely to see more evidence of dramatic changes within the education sector in terms of where, how, by whom, with whom, and how it is financed. The involvement of the business sector in financing and delivering education programs is rising. For example, more for-profit educational enterprises are being established, business is investing in specific training capacity to prepare its workforce, businesses are investing in new kinds of schools and educational institutions, and businesses are winning a growing number of government contracts to provide educational services.

Workforce (and consumer) demographics are changing. Women now comprise nearly half of the paid labor force (41% worldwide, 43% in high income countries), the proportion of children (ages 10 to 14) in the workforce is falling (from 20% in 1980 to 13% in 1998), and the number of seniors (65 and older) in the workforce is growing.

General Observations

There are several important general observations about how job markets are changing.

■ *Workforce (and consumer) demographics are changing.* Women now comprise nearly half of the paid labor force (41% worldwide, 43% in high income countries), the proportion of children (ages 10 to 14) in the workforce is falling (from 20% in 1980 to 13% in 1998), and the number of seniors (65 and older) in the workforce is growing.[6] Because developing countries have larger percentages of their population under the age of 30, the portion of the world's overall workforce between 15 and 24 is on the rise. Still, labor force participation rates for youth vary by gender and by region. The labor force participation rate for males, ages 15 to 24 is 83.5% worldwide while for females ages 15 to 24, there is substantial regional variation in rates (e.g., 73.7% in Burkina Faso, 19.9% in Egypt, 45.2% in Colombia, 10.6% in Pakistan, 35.9% in Philippines, and about 60% in Germany).[7] Many companies have the vast majority of their workforce in the 16 to 24 age range—the majority of workers in South East Asian factories producing Nike garments and apparel, for example, are young adults. Similarly, the civil society sector employs large numbers of young people. They command lower salaries, which makes them more affordable to nonprofit/charitable organizations, and their idealism, commitment to cause,

[6] Data from *World Development Report 1999/2000,* The World Bank (Oxford University Press: New York, New York, U.S.A., 2000).
[7] *Key Indicators of the Labour Market 1999,* International Labor Office, Geneva, Switzerland, 1999, pp. 18-23.

creativity, and youthful energy are valuable resources in this sector. While many governments invest vast resources in youth employment programs, government tends to have fewer youth employees than the other two sectors although youth are a large portion of most countries' military service. Some of these demographic changes in the workforce are catalysts for the development and use of new technologies—increased numbers of women, youth, and diverse workers have brought different issues and ways of thinking about work along with new perspectives, methods, approaches, styles, needs and preferences related to employment.

■ *We have access to more data and knowledge than ever before.* This increases the need for skills in analysis, interpretation, critical thinking, and assessment that can distinguish between accurate and inaccurate, important and less-important information. In circumstances of information overload, the ability to distinguish between important and trivial information is critical, as is the ability to find the tiny bits of meaningful information that might exist within a data deluge: to "find the needle in the haystack."

■ *Collaboration is possible across time, distance, and culture, and it is of growing importance.* A transnational/global company's operations depend upon employees, managers, and executives being able to develop, produce, and market products through complex, multicultural systems around the world. Collaborative computer-aided design and networking systems, in which engineers in San Francisco, Singapore, Bangalore, and Helsinki may all work together, albeit at vastly different times on a given day, to design and implement a customer's information and data security systems, give us a glimpse of the global production networks to come. Another example is Hitachi Automotive Products in Harrodsburg, Kentucky, a U.S.-based subsidiary of the Japanese conglomerate Hitachi Group. The plant's largest customer is Ford Europe, its suppliers are primarily in the U.S. and Japan, and its workforce is primarily from Kentucky, with some of the executives and engineers from Japan.

A transnational/ global company's operations depend upon employees, managers, and executives being able to develop, produce, and market products through complex, multicultural systems around the world.

■ *Most, if not all, jobs are demanding more and new skills, and many feature new tools.* Low-skill jobs are becoming more sophisticated and often more technical. Higher-skill jobs are becoming more complex within the context of the 24-7-365 global workplace—the pace and demands have accelerated, and operating in a global context expands the scope of most routine tasks and operations. For example, negotiating, contracting, complying with laws in multiple regulatory environments and jurisdictions, managing a diverse workforce located in vastly different types of settings, dealing with currency fluctuations, dealing with different languages, and trying to keep pace with rapid technological change and its corresponding opportunities has made corporate research and development, production, decision making, marketing, management, and governance increasingly broad and complex. Government officials, communities, citizens, landowners, and business people in developing countries need strong negotiating skills as they face growing interest by foreign investors to enter contracts regarding natural or human resources and business development. Employees must learn to use a range of new tools to meet these demands. Tool development and tool acquisition are important. Perhaps even more important is developing the capacity to choose which tools are best for which tasks.

Although we quite rightly think of computers, satellites, and high tech gadgets as the new technologies, it is the concepts, connections, knowledge, and innovations in the operating systems, software, and networks driving these components that are fueling the rapid pace of technological change.

■ *The goal of innovation for the 21st century assembly line is to achieve custom/tailored production in which every customer gets what s/he wants.* Henry Ford would be excited by the promise that computer-aided design, robotics, artificial intelligence, and software-driven industrial arts and equipment have already delivered for achieving the benefits of traditional assembly line production—economies of scale and predictable, high standard results—but with all of the enticement and gratification of customized, personalized products and services. New technologies make it possible to use assembly-line methods to achieve tailored results.

■ *Knowledge, ingenuity, software, and innovation are key, particularly as their development becomes increasingly globalized through efforts to achieve universal access and software compatibility.* Although we quite rightly think of computers, satellites, and high tech gadgets as the new technologies, it is the concepts, connections, knowledge, and innovations in the operating systems, software, and networks driving these components that are fueling the rapid pace of technological change. The interaction between these two necessary sides of the Information Age—the knowledge that conceives, designs, and runs the physical tools (the "software") and the physical tools (the "hardware") that in turn facilitate knowledge development, collaboration, and application—is ever more interesting in a multicultural, global context. There is no question that the interaction of scientists, engineers, communications experts, and end users from around the world, all of

whom need information tools and who arrive with different knowledge and ways of thinking, contributes greatly to the cycle of innovation. Knowledge has become a commodity. It is a highly-prized, sought-after product in every sector, so there is growing attention also to the processes of knowledge development. In an information-rich world, the art and science of how to use and apply knowledge become ever more important. How do people gather, process, analyze, interpret, synthesize, understand, and connect information to make it meaningful? How do they make choices about or know which information is useful and which is trivial? An increasing number of companies are making their revenues through products and services that foster and facilitate knowledge development for direct commercial purpose and application, largely through facilitating a process – interaction between the employees of a single company located around the world, business-to-business processes up and down production and supply chains, business-to-consumer interaction, and relationships involving business and actors in other sectors (government, civil society) through which valuable, diverse, strategic information is often available. There are also several dominant elements and players influencing the pace and character of innovation, knowledge application, and diffusion. The products and services of companies such as Cisco Systems, Oracle, and Microsoft are greatly influencing the innovation explosion.

■ *Interdisciplinary efforts are delivering innovation.* The trend toward specialization continues unabated. But there is a competing, or perhaps complementary, trend that is gaining broader attention and respect for its accomplishments: interdisciplinary/cross-disciplinary, and cross-sector collaboration. Such connections are causing people to "think outside the box" and develop new ways of framing challenges, opportunities, and solutions. New fields of study, such as biomedical engineering and industrial psychology, have emerged as a result. The cross-cultural nature of the global economy is a natural impetus and driver for this trend in innovation, and there is also increasing recognition that when people with vastly different training, expertise, and experience interact, new ideas emerge. A stark example may soon emerge if pharmaceutical and chemical companies are manufacturing computers and computer chips. A growing number of scientists have been nurturing the new science of molecular electronics ("moletronics") and they believe molecular chips will be able to do far more than silicon – they will be faster and cheaper. Computing's future may well be achieved through chemistry and even biology in tandem with electronics, rather than through electronics alone. Scientists in several research labs and at Hewlett Packard, IBM, and Mitre Corporation are actively exploring ways to apply this knowledge, and it may lead to products that transform the information industry. Innovation is also resulting

The trend toward specialization continues unabated. But there is a competing, or perhaps complementary, trend that is gaining broader attention and respect for its accomplishments: interdisciplinary/cross-disciplinary, and cross-sector collaboration.

from cross-sector interaction through which civil society, business, and government actors are drawing on their particular experience and knowledge to improve programs, services, and policies.

One of the advantages of youth employment programs is that young people typically have not been conditioned or trained in what cannot be done, but rather they have an innate sense of possibility.

■ *Perhaps the most important observation is that there are no absolutes.* New technologies allow us to transcend and overcome boundaries that seemed impossible 10 to 50 years ago. Each innovation becomes the foundation for others. Transistor technology, for example, laid a foundation for much of the technological innovation we have seen in the last several decades. A few years ago many experts believed there were limits to miniaturization and they were close to reaching those limits. A young Canadian company, JDS Uniphase, has challenged that theory and, with its innovative laser products, is potentially launching a whole new era of technological development. The company's annual revenues tally billions of dollars even though the annual production can fit into a single coffee mug. One of the advantages of youth employment programs is that young people typically have not been conditioned or trained in what cannot be done but rather they have an innate sense of possibility.

An amalgam of "old economy" and "new economy" companies comprise the list of the most admired and successful companies at the dawn of the 21st century. The network communication and internet technology companies are relative newcomers, but this belies their crucial role in the success of the range of companies that provide the products and services relevant to the overall functioning of the global economy (e.g., aerospace, chemicals, food production, manufacturing, pharmaceuticals, motor vehicle manufacturers, retail, telecommunications, insurance, and financial). Just as network communication and Internet/Web technology companies are creating the e-World, we can only guess at the scope and scale of applications that will result from biotechnology advances. Already we see growing citizen concerns worldwide about genetically modified foods and a preference for caution in policy debates about genetic engineering and applying biotechnology. Still, we can anticipate that these technologies will yield new

engines of transformation within society, which underscores the need for growing scientific literacy among the world's people.

Every sector is changing, some more dramatically and quickly than others, as new technologies are applied to routine tasks. Many industries and production processes will be unrecognizable in a very short time. Cisco Systems, one of the giants in the high tech industry, prides itself on paperless processes. From the time a customer places an order through delivery and invoicing, the transaction exists only in the digital world, but far from virtual, it is as real as any transaction ever has been.

Every sector is changing, some more dramatically and quickly than others, as new technologies are applied to routine tasks.

Whether one considers a longstanding industry such as mining or a newer industry such as digital imaging or network communication, information technologies are providing vast new resources and tools for improving worker and environmental safety, customizing production, monitoring performance, reducing costs, collaborating with others, collecting and interpreting data for deeper knowledge and understanding of implications, and simulating and testing design and performance in ways that reduce costs, accidents, and development cycles.

Although new technologies are displacing many kinds of jobs people once held, they also are spawning new jobs for people such as medical technicians and software engineers.

The challenge is to prepare people to fill jobs that have not yet been imagined, using tools that have not yet been created, to address problems and issues that either have not yet surfaced or have defied solutions over hundreds and thousands of years.

There are many, wide-ranging implications of these global and local labor market shifts on the employment opportunities for youth.

...the real mandate for business should be to invest substantially in broadening the pool of "really smart" people through improving education and access to education at every level.

High Tech Companies Want the Best and the Brightest

The high tech industry, which in many ways is driving the global economy, is unabashedly honest about wanting the "smartest" workers on the planet. This fact bodes well for those who through opportunity, access, and ability can demonstrate their intellect and potential to prospective employers. It also bodes well for universities such as the Massachusetts Institute of Technology that have been supplying many of these "smartest" workers. The situation bodes less well for those youth who lack such opportunity and access, even if their innate ability is great. Ironically, the real mandate for business should be to invest substantially in broadening the pool of "really smart" people through improving education and access to education at every level. Through their corporate contributions, foundations, and partnerships, some companies are investing in programs that address the needs of underserved and isolated communities and, in the process, are helping to expand the pool. Still, the number of companies competing for a relatively small pool of talent is far greater than the number of companies with sustained investments to expand the talent pool dramatically.

Example: High tech companies around the world – e.g., Cisco Systems, Microsoft Corporation, Oracle, Sun Microsystems, IBM, Phillips, Nortel Networks, Sony, Hitachi, Siemens, Nokia – all seek to recruit and retain smart, capable workers and most offer professional development to enhance knowledge and skills.

How are information technology companies investing in developing the best and the brightest? Most of these companies continue to use vehicles such as sponsored research, scholarships, and internships/fellowships to identify, support, and recruit talented workers. At this moment in time, demand for these workers vastly exceeds supply. Most information technology companies lament the hundreds or thousands of technical and high-skill positions they cannot fill. How are some companies investing to address this situation?

Cisco Systems is collaborating with the International Youth Foundation to build sustainable information technologies training capacity in developing countries through the Cisco Networking Academy program. Local businesses sponsor the participation of individual students. In each country, 100 to 200 students per year earn a Cisco Networking Administrator Certificate, which establishes clear career opportunities in the field of information technology.

Placing a premium on education through its social responsibility efforts, the Lucent Technologies Foundation has entered into a global partnership with IYF aimed at expanding educational and learning opportunities for young people in 24 countries. IYF is directing Lucent support to strengthen and expand effective programs related to educational reform, developing and supporting teachers, inspiring excellence in science and math, providing alternative educational opportunities, and developing young leaders.

Reach & Teach, a South African nongovernmental organization established in 1994 with support from IBM has launched a South African version of IBM's Reinventing Education effort and through it has established Professional Development Laboratory schools. The goal of these schools is to improve and support teacher training, so that teachers can better educate their students. The methods are based on approaches used at the Reinventing Education sites in the U.S. whereby experienced or master teachers host visiting teachers in their classrooms. By the end of 1997, "50 master teachers had trained nearly 250 visiting teachers, improving the educational opportunities for approximately 7,000 students. In the process, IBM has placed more than 900 personal computers in South African schools. The benefits of IBM technology aren't only for students. Residents of these rural villages—particularly small-business owners—are encouraged to use the school computers after hours. In some schools, adult education classes also are provided."[8]

Nokia Corporation, a high tech network communications company, does not focus specifically on promoting high-tech skills and opportunities among young people but instead promotes youth "making a connection to their peers, their communities, and to themselves."[9] The motivation for this approach is to give young people a chance to develop based on their experiences with and learning from others, their own creativity, and their growing awareness of the world.

More Responsibility and Autonomy at Younger Ages

Youth employment offers more responsibility and autonomy at younger ages and less direct support and supervision. There are incredible new opportunities with

[8] IBM 1997 Charitable Contributions Annual Report, IBM, Armonk, New York, 1998.
[9] Material from Nokia publications and conversations involving IYF staff and Nokia personnel.

extensive responsibilities at very young ages. This represents a transfer of power into the hands of youth and opportunities for their intellect, creativity, work ethic, and skills to be taken more serious globally. As the population in many industrialized countries ages, the youth of the developing world will, by default, carry growing responsibility for maintaining and sustaining the global economy. In this context of growing responsibility it is important to note that there is decreasing direct support, guidance, and training from elders, even though the need for their support and guidance remains important.

As the population in many industrialized countries ages, the youth of the developing world will, by default, carry growing responsibility for maintaining and sustaining the global economy.

This decreasing support has both positive and negative implications. On the positive side, it means less stifling of youth's natural curiosity, drive, and talent than in the "you have to pay your dues" tradition. Because today's and tomorrow's youth are also growing up with completely different sets of tools and skill sets, it is safe to assume that they may not be overly shackled with the strategies, tools, and processes of their predecessors—unless these have been proven effective and timeless in their efficacy (and there are mechanisms for transmitting the learning). The "more responsibility and less supervision" scenario implies experiential learning of the highest order. The negative implications are that institutional and individual wisdom, built over time, is not necessarily passed along to new generations of workers. Lessons learned about what has been tried, and how well or poorly it worked, may not be passed down as easily or readily. There will also be less support from elders. Each young worker, therefore, will also have more responsibility for his or her own learning and for developing the capacity to handle risks and responsibilities ably at a very young age. This reality places a premium on youth arriving in the workforce with the skills they need—technical skills, life skills, confidence, social skills, and learning skills.

Example: In many of the exciting high tech start-ups (e.g., Apple, Yahoo, Microsoft), young founders and managers (often in their 20s) have faced the full range of business development and management responsibilities—on a global scale; a young manager in

a manufacturing operation makes all sorts of decisions routinely that may affect worker safety and overall production; a departing 20-year veteran engineer from one of the world's largest aerospace companies laments that constant corporate restructuring and financial mandates virtually eliminated the tutelage and training/development opportunities for new young workers that he had enjoyed when he joined the company as a newly graduated engineer; a young investment broker single-handedly brought down a prominent UK bank through his financial maneuvering in the global investment world.

In school and in employment opportunities, teachers and employers need to become more adept at coaching and facilitating learning rather than serving as the primary purveyors of knowledge and transmitters of information. The former process supports student/worker efforts to find answers themselves, while the latter places the responsibility for answers with the teacher or employer. Nevertheless, the dominant model in education and in human resource management still places the teacher and supervisor in central directing roles rather than facilitating roles.

Despite an often stated commitment to the principle of learner-centeredness, attention to the needs and demands of learners is absent from the majority of technology-enhanced learning initiatives, as is any sustained attempt to use learners to construct their own curricula and to participate actively in designing solutions to their learning needs.

Despite an often stated commitment to the principle of learner-centeredness, attention to the needs and demands of learners is absent from the majority of technology-enhanced learning initiatives, as is any sustained attempt to use learners to construct their own curricula and to participate actively in designing solutions to their learning needs. The dominant approach still tends to be to consider learners as empty vessels to which knowledge must be transmitted, in a largely one-way process of communication, by the teacher.[10]

But there are examples of approaches that inspire and nurture youth confidence, self-directed learning, and life skills.

One of IYF's premier partners in these efforts is Nokia and the joint "Make a Connection" program, which, as previously mentioned, challenges youth to "Make a connection" to their peers, families, communities, and their own ideas. The partnership started in 2000 in six countries, and supports program activities oriented toward strengthening life skills, cultural tolerance, and community involvement. The range of program activities includes Brazilian students tutoring youth, in reading to foster basic literacy, while Germany is building an adult-youth, one-on-one mentoring program. The Chinese and Mexican programs promote youth volunteerism in their communities, while the South African and United Kingdom programs provide life skills training to students and unemployed youth to equip them for the world and workplace of tomorrow. Nokia's vision for the program is to nurture in youth the inspiration, learning, and creativity that come from exploration and interaction.

[10] Butcher, N., "The Possibilities and Pitfalls of Harnessing ICTs to Accelerate Social Development: A South African Perspective," SAIDE, Johannesburg, South Africa, 1998. Paper presented at the UNRISD Conference on Information Technologies and Social Development, Geneva, Switzerland, June 1998.

The Hitachi Foundation has an initiative focused on partnerships for educational and economic opportunity through which 13 organizations with youth development programs featuring educational and work-related objectives are strengthening these efforts and helping young people participate more effectively. Our Piece of the Pie, which is run by Southend Community Services, features an entrepreneur program that places youth in all decision making and production roles in businesses they create and sustain. One of the youth businesses is JAM (Junior Art Makers), a design firm run by the young people that creates and markets greeting cards and other design products. The young entrepreneurs are mentored by those who have gone through the program, one another, and adults.

Since 1976, The Prince's Youth Business Trust in the United Kingdom has helped more than 43,000 disadvantaged young people start their own enterprises. The program relies on assessment of a business idea, flexible loans and/or grants, and an innovative mentoring program to provide managerial support, business advice, and personal encouragement. The model has been adapted for implementation by the Bharatiya Yuva Shakti Trust in India and Nations Trust in South Africa.[11]

The Association of Students in Economics and Management (AIESEC) is the largest student-run association, boasting 50,000 members in 85 countries. AIESEC aims to educate its members—future business and community leaders—to be globally-minded, responsible members of society. AIESEC has developed a range of resource materials and programs that foster leadership, responsibility, decision making, and community involvement. For example, the Global Theme Programme encourages students to identify local development needs such as micro-enterprise development, literacy training, or environmental education and then to design, implement, and manage projects to meet those needs, often in partnership with companies, NGOs, and government agencies.[12]

BP Science Across the World uses information technology to broaden students' understanding of global scientific and environmental issues and their implications.

Many young people around the world are getting a great deal of their youth employment experience through community and nongovernmental organizations. Work in the nonprofit/charitable sector typically introduces young people to a broad range of skills and responsibilities...

New Community Players

There are important new players in the youth employment arena – such as community organizations and NGOs. Many young people around the world are getting a great deal of their youth employment experience through community and

[11] Nelson, Jane, *Business Partners in Development*, The Prince of Wales Business Leaders Forum, London, United Kingdom, 1996, p. 153.
[12] Ibid., p. 230.

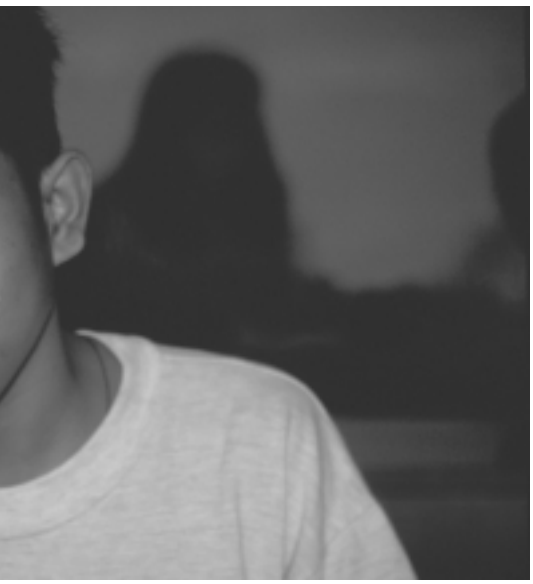
nongovernmental organizations. Work in the nonprofit/charitable sector typically introduces young people to a broad range of skills and responsibilities, requires resourcefulness and promotes problem solving, and develops specific content knowledge. The skills are readily transferable to a business context. At relatively low costs, the educational and work-oriented training and rigor of these youth employment opportunities could be enhanced with the assistance of business, with positive benefits for all concerned.

Whether addressing literacy and education in the Philippines, the plight of street children in Brazil, the devastation of armed conflict in Yugoslavia, racism and youth violence in the United States or Germany, HIV/AIDS awareness in South Africa, or family planning in India, youth are valuable workers in the civil society sector.

The International Youth Foundation's global partners—such as the Children and Youth Foundation of the Philippines, the Polish Children and Youth Foundation, the Youth Development Trust in South Africa, and the Children and Youth Partnership Foundation in the United Kingdom—are implementing a wide range of youth employment programs and activities, in some cases employing youth to design and manage these efforts. Similarly, a range of organizations support youth entrepreneurship and employ young people to implement these programs: Ashoka, Junior Achievement International, International Development Conference, and the previously mentioned AIESEC. A number of governmental agencies likewise support youth employment in community organizations and NGOs and have programs that build leadership and managerial capacity among youth (e.g., Commonwealth Youth Programme (UK), the Organization for American States Caribbean Youth in Business Project, and the Conference of Ministers of Youth and Sports of French Speaking Countries).

At the grassroots level, thousands of young people often get their first work experience in small NGOs. Whether addressing literacy and education in the Philippines, the plight of street children in Brazil, the devastation of armed conflict in Yugoslavia, racism and youth violence in the United States or Germany, HIV/AIDS awareness in South Africa, or family planning in India, youth are valuable workers in the civil society sector.

Efforts to improve the educational and work-related quality of these early work experiences have proven to be highly successful in enhancing their employment prospects, prompting them to seek advanced education, inspiring them to be active and effective community members, and encouraging many to become



employers themselves through NGOs or companies they establish.

Skills and Capabilities all Young People Need

■ *Decision-making skills are vitally important.* The stakes are getting higher. The stakes of decisions are high everywhere, but decision-making skills and negotiation capability in developing countries are particularly crucial. Contracts governing a country's natural, human, intellectual, and financial resources are being drafted every day, and many of these agreements have uneven benefits and long-term implications for youth and for the whole country.

■ *Flexibility is critical in an era of widespread, frequent change.* With the rapid pace of technological change and speed at which innovations take root around the world, youth are likely to have several different kinds of jobs and career responsibilities in life. Flexibility will be needed in specific skills, content knowledge, and professions, and also in human relations, cross-cultural and cross-sector relationships, policy formulation, and practices. The only constant for most will be the presence, force, and speed of change. Developing a capacity for dealing effectively with change—and in the process of change knowing what to keep and what to change—will be of growing importance.

■ *Individuals hold responsibility for lifelong learning.* Youth employment experiences will have to impress upon young people the importance of taking responsibility for their own learning while also helping to cultivate this ability.

■ *There will be increased use of our audio and visual senses—pictures, diagrams, images, symbols, icons, and multimedia.* A great deal of technological development is based on ascribing value to speed—doing things faster and faster. We know the brain processes information very quickly. But part of the challenge of speed in human workers links to our sense of sight. The speed of light, which we can begin to approach through our visual sense, is far faster than the speed of sound. One could argue that our dependence on written and spoken communication inevitably limits our speed to the speed of sound. If

With the rapid pace of technological change and speed at which innovations take root around the world, youth are likely to have several different kinds of jobs and career responsibilities in life... Developing a capacity for dealing effectively with change—and in the process of change knowing what to keep and what to change—will be of growing importance.

we can begin to "read" at a pace closer to the speed of light rather than the speed of sound, then our ability to process the more expansive information resources might improve and the processing task might become slightly less daunting and certainly more productive. In addition, in a world of cultural and linguistic diversity, using pictures, images, symbols, sounds, and rhythm can facilitate communication.

Without programs and policies to bridge the gap, there is the very real possibility of marginalizing a vast and growing portion of the world's population and, in turn, creating a global caste system comprised of technology haves and have-nots.

■ *There will be increased use of all senses.* As our knowledge of human development and of how the brain works grows, it is clear that our senses are the crucial pathways to learning. Even beyond the senses of sight and sound emphasized above, we learn through all of our senses. We are gradually understanding more about how other senses—smell, taste, and touch—contribute to our processing of information, experience, and ultimately what we learn and retain. There is more to learn about how music might be used to facilitate learning as it is clear that people can recall, prompted with only a few opening notes of music, the words and melodies of songs that have not been heard for many years. For example, Talmudic scholars have used music to facilitate their learning of the Torah. Surely there are other educational applications. Youth employment experiences that foster the development and use of all of the senses are likely to deliver more capable adults who are flexible, skilled, and resourceful.

■ A*re we pushing physical limits?* The 24-7 business environment challenges us to create work environments that may well defy natural human limits. Knowledge of circadian rhythms and human physiology shed light on the physical toll and cost of many work habits (e.g., shift work, repetitive motion). There will be greater costs, in accidents and stress of many kinds, if we ignore what we are learning about human beings' physical functioning.

The Digital Divide

The "digital divide," income disparities, and systemic/structural barriers carry profound implications for the opportunities and experiences to which youth have access. In a few countries in North America and Europe, most schools have computers and Internet access. Even in these technology-rich countries, however, there are communities that face more obstacles (e.g., girls/women, ethnic minority groups, rural populations, and low-income communities) or are being left behind in the new global economy as a result of a lack of access, training, and the means of sustaining/supporting technological infrastructure. In developing countries

where the majority of people lack electricity and have not even made a telephone call, the prospect of pervasive computer technology is far less than virtual. How can youth in these communities survive and thrive in the digital, global economy? Without programs and policies to bridge the gap, there is the very real possibility of marginalizing a vast and growing portion of the world's population and, in turn, creating a global caste system comprised of technology haves and have-nots.

Despite recent progress, Africa remains far behind the developed world in terms of Internet connectivity and usage. For example, it is estimated that 1 in 6 people use the Internet in North America and Europe whereas the comparable figure for Africa, excluding South Africa, is one Internet user for every 5,000 people (the figure for Zimbabwe is 1 in 1,100). Even South Africa, with an Internet utilization rate of 1 in 65, is below the world average of 1 in 45. This demonstrates clearly that much of the international debate on information and communication technologies (ICTs) and social development erroneously describes Africa as a homogeneous continent, in which the problems — and hence solutions — are universal.[13]

Many good programs are being designed and implemented to help curb the digital divide. Women'sNet of South Africa is a vibrant networking support program designed to enable women to use the Internet to find the people, issues, resources, and tools to support women's social action. Women'sNet was initiated by SANGONeT and the Commission on Gender Equality and aims to empower its users to utilize information and communications technologies toward advancing women's equality. A unique feature of the Women'sNet site is "Building a Web Site Together: How the Women'sNet Site was Born." The report describes the process a group of women went through to plan and build this site so that it would meet their needs. In creating their own site, the women had a number of goals, among them training information staff from key South African women's organizations in developing women's information resources for the Internet and demonstrating how to publish relevant, user-friendly online information resources for South African women.[14]

The Children and Youth Foundation of the Philippines is using computer technology to improve quality and delivery systems and widen the reach of skills, technical training, and education for out-of-school youth. As new curricula developed for specific industries and tailored for use with out-of-school youth are completed, they will be placed on a web site as a means of introducing skills and technical training to a much larger audience through the Internet and through other information technology media.

---

[13] Butcher paper delivered at UNRISD conference, 1998.
[14] "How CSOs are Using the Internet," CIVICUS World, CIVICUS: World Alliance for Citizen Participation, May-June 1999, p. 8.
[15] Butcher paper delivered at UNRISD Conference, 1998.

OneWorld International, the Benton Foundation, and the Association for Progressive Communications, among many others, are working hard to document evidence of the digital divide and promote programs to overcome it. Still, many recognize that a far larger effort and commitment are needed. Most such projects still rely on 'soft' funding. This reveals "that these initiatives remain very much at the margins of social activity and limited in impact, although the policy frameworks [and initiatives]… indicate some possibility of this shifting in the next five to ten years. Importantly, [analysis of the situation in South Africa] also acknowledges that these financial models must change in the medium- to long-term if projects seeking to harness the capacity of ICTs to accelerate social development are to make a meaningful impact."[15]

Many research studies support the same conclusion: the single most important factor in helping youth succeed in life is to have at least one positive, supportive relationship with an adult.

Youth May Have to Create their Own Jobs

Entrepreneurism and social entrepreneurism—using business concepts, tools, and structures to pursue specific social goals—are becoming important business development and employment strategies. Neither the world's large companies nor governments are interested in or capable of employing the masses. The consequence is that many more young people will have to create their livelihoods. Helping youth develop the range of skills needed to be successful entrepreneurs will have several positive outcomes for communities. It will provide jobs for individuals, business development, and economic returns for communities. This transformation to systems in which many or most people will need to create their own jobs holds vast implications for what youth employment experiences must deliver. Many interesting efforts in youth entrepreneurial training have already been mentioned, but there are many others.

For example, the Children and Youth Partnership Foundation in the United Kingdom has a vocational training project that provides education, training, counseling, and work experience for unemployed young people from Tottenham, one of the poorest areas with the lowest levels of academic achievement in the United Kingdom. This year the vocational program had three complementary components—a music business course, a sound engineering course, and a photography course—all designed to capitalize on the young people's interests and build their skills to help them pursue freelance opportunities, full-time employment, entrepreneurship, and further education.

The International Development Conference (IDC) launched a network of young social entrepreneurs globally—the Common Futures Forum. The network has 65 social entrepreneurs who regularly exchange their strategies and experience

through electronic activities and in occasional face-to-face meetings. They met for an intensive workshop in March 2000 in South Africa in which sessions addressed topics ranging from management and fundraising to building effective partnerships among business, civil society, and youth development programs.

Mentoring Relationships Remain Crucial

There is compelling evidence of the value of traditional mentoring relationships in which adults mentor youth and youth mentor younger children and siblings. Many research studies support the same conclusion: the single most important factor in helping youth succeed in life is to have at least one positive, supportive relationship with an adult. Encouraging adults and elders to maintain mentoring relationships with young people opens channels for learning, community-building, and transferring knowledge to the next generation of leaders and workers. At the same time, these relationships also provide channels for the youth-adult mentoring to occur.

We are seeing shifts in who mentors whom. The technological revolution is empowering youth in many ways. Growing up with computers instills a comfort level, confidence, and dexterity that mid-career transfers to computer technology rarely achieve. In 1999 Jack Welsh, CEO of General Electric, issued a mandate to GE employees that all employees were to master use of the Internet and worldwide web as a means of transforming the company's operations for a new era. He suggested that older employees seek out and engage younger mentors to train and guide them in using these new tools. Welsh himself engaged young mentors and through the tutelage became convinced of the promise and necessity of embracing the new information technologies.

Programs around the world are strengthening and capitalizing on youth's ability to mentor their peers, younger children, and adults. As evident in the GE example, young people's natural proclivities with information technologies are positioning them to serve as mentors for older workers and family members. There is a Kenyan saying that "he who does not know one thing, knows another." Everyone has something to teach. There is another saying that to teach is to learn again. Mentoring serves as a vehicle for sharing knowledge and experience—and in the "new economy" we will need mentors of all ages and backgrounds.

The Puente Program in California began in 1980 as a collaboration between a guidance counselor, an English teacher, and community members all concerned with finding a way to keep Mexican American students in school at a community college. Twenty years later, the program is run in 38 community colleges

Programs around the world are strengthening and capitalizing on youth's ability to mentor their peers, younger children, and adults... Mentoring serves as a vehicle for sharing knowledge and experience—and in the "new economy" we will need mentors of all ages and backgrounds.

throughout California, has been successfully adapted for the secondary level and implemented in 31 high schools statewide. Two regional centers will be opened soon to provide more support for Puente sites at the local level. Maintaining a clear, unwavering commitment to student achievement, high standards, matriculation, and community involvement (especially through the mentoring component) have been at the heart of Puente's success and have helped Puente weather the challenging political and policy environment in California. An outside evaluation identified Puente as one of very few programs that had equally strong results as a student-centered program and as a school reform effort. A highly effective mentoring component complements Puente's innovative teaching and counseling methods. Community members of all backgrounds are engaged as role models, tutors, and mentors, and Puente has also formalized the use of peer mentoring at the high school level as a means of reaching students more effectively, providing opportunities for Puente participants to stay involved with the program, and reaching out to families and younger children.

Youth employment experiences that help foster public knowledge and interest while exposing young people to the vast informational resources made more accessible through existing information technology yield better workers and better citizens. Active, informed citizens build stable communities. Stable communities are conducive to business prosperity.

Youth Play Important Civic Roles

Young workers must be sophisticated community members/citizens, both locally and globally. At the very least, they must play a role in contributing to effective company, local, and national policies on issues ranging from health care and economic development to family planning and environmental protection. Youth employment experiences must play a large role in building young people's life skills and capacity to be effective, engaged members of their communities, wherever they live and work. The Internet makes policies and practices (company, local community, national) from other parts of the world available to youth to learn from as they consider their local circumstances and opportunities. Youth employment experiences that help foster public knowledge and interest while exposing young people to the vast informational resources made more accessible through existing information technology yield better workers and better citizens. Active, informed citizens build stable communities. Stable communities are conducive to business prosperity.

One of IYF's ambitions is to assist young people to learn life skills for a fast and complex world. These life skills include, but are not limited to, self-management and self-confidence, team skills, learning skills, interpersonal competency, and leadership qualities. Fundación Para la Infancia y la Juventud-Opportúnitas in Venezuela, for example, works to strengthen alternative education programs among low-income women primarily, place women in the labor market, and thereby contribute to overall social integration. Research indicates that enhancing women's

educational and economic opportunities directly benefits the whole community (men, women, and children) and is the most effective means of improving the quality of life in a community.

IYF and the Welfare Association have received U.S. Agency for International Development (USAID) funds to implement the IT 4 Youth Program. The program creates an integrated model for introducing computer-based information technology (IT) for youth in rural, underserved, and disadvantaged areas of the West Bank and Gaza Strip to improve their learning skills, employability, and quality of life. Components include provision of hardware and software, some building or renovation of IT classrooms and training rooms, training of teachers and youth trainers, development of formal and non-formal training curricula and training of students and youth, capacity building of local partner organizations and of youth managers, and promotion of community awareness. The program recognizes that the peace process in the region must have a youth and jobs component to give the younger generation hope for productive employment and a constructive role in society.

We need to help all young people learn how to learn and inspire children, youth, adults, and seniors to be lifelong learners. We must also help young people learn that they will be more responsible for their own learning to a far greater extent than ever before.

First and foremost is a need for basic education. The Information Age requires that people navigate the worlds of words and numbers. This fact underscores just how important it is that we invest worldwide in basic education. Beyond the context of basic education and lifelong learning, there are several highly specific training requirements particularly appropriate to youth in the new global employment context.

While many of the world's most lucrative jobs already require deep scientific or technical knowledge and skills, responsible citizenship today and in the future will require people to be able to analyze or assess scientific information sufficiently to decide among public policy choices and deal responsibly with their consequences.

The Education Imperative: Get a Basic Education

There is no substitute for basic education, particularly literacy (the ability to read and write), numeracy (the ability to understand principles of mathematics), and scientific concepts and knowledge.

- Reading
- Writing
- Numeracy
- Science

These skills provide a foundation for learning from text-based and numerical information, communicating with others, and understanding patterns. These skills are essential in an information-driven global setting. Technological advances have increased the need for science literacy among all people. While many of the world's most lucrative jobs already require deep scientific or technical knowledge and skills, responsible citizenship today and in the future will require people to be able to analyze or assess scientific information sufficiently to decide among public policy choices and deal responsibly with their consequences. Already there are profound issues relating to the environment, medicine, genetic engineering, and space exploration that cannot be decided based on costs alone. Ordinary citizens need a far more sophisticated understanding of science and the implications of decisions to participate effectively in forming, approving, or rejecting public policy initiatives on issues ranging from cloning to registering a population's DNA.

Despite substantial progress since 1950 in improving adult literacy rates and educational opportunities worldwide and in every country, the sad truth is that

investment in education is not a universal priority. Education spending ranges from about 2% to 5% of GNP in the different regions, with middle and high-income regions spending an average of 5% and low-income regions ranging from 2% to 4%. Using percentages is a bit misleading, however, as the real spending levels in low-income countries are so low that 4% does not translate into much actual spending. Still, the fact that Lesotho and Botswana spent 9% and 10% of GNP respectively on education in 1996 is an encouraging sign. The Scandinavian countries routinely invest in education at levels exceeding the world average of about 4.8% (e.g., Norway at 7.5%, Finland at 7.6%, Denmark at 8.2%, Sweden at 8.3%).[16] Ironically, military spending as a share of GNP is 2% to 3% in most parts of the world, and up to 7% in the Middle East and North Africa.[17] The public expenditures for the military do not account for private purchases of weapons, which have escalated dramatically in the 1990s. These figures challenge societies to reflect on their priorities for public expenditures and the corresponding implications.

Learn How to Learn

We need to help all young people learn how to learn and inspire children, youth, adults, and seniors to be lifelong learners. We must also help young people learn that they will be more responsible for their own learning to a far greater extent than ever before.

- Learning skills – research, reading, writing, listening, intuiting, perceiving, connecting learning to existing knowledge, analyzing, comparing, evaluating, advocating, imagining
- Communication skills
- Facility with more than one language, particularly English – many people argue that learning English is crucial in the Information Age because so much of the technology and content (e.g., web content) is in English. Certainly, facility with English helps, but the fact remains that bi-lingual or multi-lingual ability typically enhances employment possibilities, learning opportunities, and both personal and professional development
- Teaching/sharing skills

Use All of the Senses

No matter one's personal learning style preferences or proclivities, we need to help young people learn to use all of their senses as vehicles for learning to maximize their learning and potential. Technological advances are increasing the

[16] World Development Report 1999/2000, World Bank, Washington, DC, U.S.A., 1999, pp. 240-241.
[17] World Bank Atlas 2000, p. 46.

sophistication and depth of our knowledge of the senses of sight, sound, touch, taste, and smell, all of which are vehicles for learning.

- Visualization and imagination skills
- Sensory skills

Learn by Doing

Experiential learning is effective precisely because it takes advantage of all of the senses, provides feedback loops that help assess the learning, typically provides practice and repetition that foster true command of knowledge, and constantly introduces youth to new information, processes, stimuli, and challenges that push development, problem-solving, and knowledge growth. Trial and error, success and failure are all important aspects of learning by doing.

- Practical experience
- Space to make mistakes, support to reflect on and learn from mistakes, and space to succeed
- Application of knowledge
- Practice, practice, practice

Experiential learning is effective precisely because it takes advantage of all of the senses, provides feedback loops that help assess the learning, typically provides practice and repetition that foster true command of knowledge, and constantly introduces youth to new information, processes, stimuli, and challenges that push development, problem-solving, and knowledge growth.

Link Learning Across Boundaries and Disciplines: Thinking Outside the Box

Innovation comes from making connections and building bridges from the known to the unknown. Part of the inherent value of interdisciplinary, cross-disciplinary, and cross-cultural efforts is that they broaden the knowledge base and, perhaps even more importantly, they introduce people to new and different ways of thinking.

- Learn about other fields, contexts, and ways of thinking
- Explore and understand multiple perspectives
- Pursue relationships across traditional disciplinary or cultural boundaries
- Bridge technical and non-technical information
- Apply knowledge, skills, and experience to new issues and circumstances

Recognize Patterns, Question Patterns, and Think Critically

Pattern recognition is at the heart of learning, serving as the bridge between what we know and do not know. Recognizing patterns helps us determine how and

where to add new information to our existing knowledge base. Questioning patterns and frameworks is also essential to knowledge development. Youth employment activities must seek to foster critical, analytical thinking, as these are integral to a problem-solving capability that is ever more important.

In a world where knowledge is increasingly important, one sure way to enhance one's knowledge is to enlist as many guides, mentors, and collaborators as possible, and from as broad a range of people (all ages, backgrounds) as possible.

- Critical thinking and making distinctions in a context of information overload.
- How to evaluate and assess information—its quality, accuracy, relevance, and limitations.

Make Choices, Make Decisions

Making choices and decisions are vehicles for applying knowledge and helping people recognize what they know and do not know. Choices and decisions are different, and both are essential in the worlds of work and life. There is no substitute for practice. People become better at making decisions, choosing among options, exercising judgment, developing strategies, and even developing options when they get plenty of practice.

- Develop strategies
- Establish and apply criteria to guide decisions among choices
- Allocate resources
- Evaluate performance
- Learn lessons

Take Responsibility for Knowledge and Outcomes

Being accountable for the choices and decisions we make is critical. There are many implications and consequences of all actions, choices, and decisions. Often we focus only on the anticipated, desired consequences, ignoring other outcomes (especially unanticipated) and implications of decisions.

- Provide incentives for self-education
- Encourage speed with accuracy, depth, and sound judgment. Encourage abilities in reading, processing information, and making decisions at a fast pace—decisions that incorporate a solid grasp of the implications of the alternatives

- Practice making decisions and dealing with the consequences
- Learn from experience (one's own experience and others')

Learn from Others and Work with Others

In a world where knowledge is increasingly important, one sure way to enhance one's knowledge is to enlist as many guides, mentors, and collaborators as possible, and from as broad a range of people (all ages, backgrounds) as possible. Learning how to learn from other people is as important as enlisting all of our senses and tapping our own intellectual capacity. Learning how to work with other people is critical. Collaboration requires specific skills and abilities that can be learned and cultivated.

Learning how to learn from other people is as important as enlisting all of our senses and tapping our own intellectual capacity. Learning how to work with other people is critical. Collaboration requires specific skills and abilities that can be learned and cultivated.

- Cultural proficiency and an ability to navigate effectively in a multicultural world in much the same way that being literate allows people to navigate in the world of words — the notion of being "culturate."
- Human relations and training — particularly communication, mediation, conflict resolution, conflict prevention, respect, cultural awareness and sensitivity and skills, cooperation and collaboration, and teamwork.
- Mentoring and peer mentoring.

Gain Universally Needed Knowledge and Skills

There is some knowledge needed universally even though many of the specifics may vary from place to place and culture to culture.

- Personal health
- Communication skills
- Management training
- Finance knowledge and skills
- Civic participation
- Cultural and multicultural awareness
- Stress management and dealing with pressure

Consider Local to Global Context (from "self" to larger context)

In the global context, even the most local actions have broader implications. Global forces and policies affect things locally. A new requirement for youth employment is to help young people deal with this continuum of local-to-global action and consequences.

- Civic awareness (local and global context) and community involvement
- Policy and advocacy training (local/national/global policy environment)
- Global issues (e.g., health and disease prevention, environment, population, trade, international relations)
- Cultural diversity

It is critical to be intelligent about the level of risk one can take and at the same time to enhance one's capacity to prepare for, take, and deal with the consequences of taking risks.

Take Risks

Learning, personal development, and community development are inherently journeys of exploration. Exploration is risky because it takes us into the unknown. It is critical to be intelligent about the level of risk one can take and at the same time to enhance one's capacity to prepare for, take, and deal with the consequences of taking risks.

- Build incentive systems that favor and reinforce positive outcomes and discourage negative, undesirable outcomes
- Encourage youth to try general business and entrepreneurial activities
- Apply knowledge to new context
- Help youth learn to analyze risk

Giving youth access to communication and information technology is important—but it is only the first step.

At its core, the "digital divide" is a manifestation of long-standing inequality. The wealthy have assets to invest in new technologies and approaches, which in turn give them even greater advantage over those who lack the assets and means to make such investments. Even in this rather daunting context, however, the current digital divide challenge presents an opportunity to achieve a new paradigm of development success. Meeting this challenge will require will, commitment, investment, and smart decisions.

The digital divide is often perceived as a problem of access alone: with the assumption being that if only we wire schools, get computers into the classrooms or into people's lives, and give people email accounts, the divide will be bridged. Regrettably, access is only the first obstacle to overcome. After gaining access, the challenges of use, maintenance, and the rapid obsolescence of the technology (relative to what is "standard" in use in the most technologically developed countries) remain. "The history of education is littered with the corpses of technology-based projects that were killed because of the high operating costs, problems of adaptation to local conditions, lack of skilled personnel to operate the technologies, and lack of effectiveness."[18]

Access to technology does not guarantee that those who gain access can use it. Do they know how to use the technology? Use is an issue both of training in software use and an issue of language. Although there is an increasing amount of web content in a wide range of languages, English remains the dominant language of the Internet and worldwide web. This fact limits access and use for millions of people.

Around 60 percent of the world's women do not read or write—and if they did, it wouldn't be in English, the language of the net. Beyond gender and class, there are other—equally predictable—disparities related to location (rural/urban), disability, and age. The prime factor, however, remains economic. How many women around the world can afford access to a computer? How many could afford the raised phone bills—or even access to a phone? All this means that only a tiny minority of the world's women are currently online. It's not only personal poverty that's a problem: there's also national poverty.[19]

Use of the technology can only occur once there is proper orientation or instruction to provide the fundamental knowledge needed. Many developing countries and low-income communities are targets for donations of old technology.

---

[18] Bates, A.W., "Media and Two-Way Communication in Distance Education," *Distance Education: A Developing Method*, Norwegian State Institution for Distance Education, NKI, 1991, p. 1

[19] Quote by Anuradha Vittachi, founding editor of OneWorld Online and Director of the OneWorld International Foundation, *CIVICUS World*, May-June 1999, p. 2.

While these donations often serve a positive purpose in providing access and they may also include training, there are a few potential shortcomings. Often spare parts are not available, and there may not be technicians trained in equipment repair or maintenance. In addition, using old technology has limitations. For example, if people send emails with attachments saved in higher versions of a software package than the recipient has, it can be difficult or impossible to access the attachment. Similarly, many older computers that have been donated do not have sufficient memory or upgrade capacity to handle images (the files for which are usually quite large). This fact curtails worldwide web access substantially to those with lower grade equipment.

Still, there are exciting possibilities for bridging the digital divide. First, other technologies can be used to help bridge the divide. In Africa, for example, use of radio technology is eminently practical for reaching populations. In addition, satellite technology can potentially eliminate some of the access challenges in rural and isolated areas resulting from an absence of traditional electricity infrastructure and telephone service. A range of telecommunications and networking technologies promise to reduce the cost of participation in the Information Age and basic access. Also, we are learning a great deal about how the use of community centers, simulation technology, and lower-tech tools can help people become more skilled in the use of newer technologies. Giving youth access to communication and information technology is important—but it is only the first step.

The examples below illustrate the range of issues, challenges, and possibilities for addressing and overcoming the digital divide effectively.

In an *Economist* article about telecommunications regulations, mobile phones, and satellite services in Africa, Somalia emerges as the most deregulated and shows the most growth and progress.[20]

A growing number of companies have Internet cafés their workers can use. This strategy is particularly helpful in developing countries and rural areas where access to the Internet is extremely limited as a result of a lack of infrastructure and the prohibitive costs of computer technology and telephone service. Internet cafés provide a forum for worker learning and skills building. Two examples are Nike, which has Internet cafés at some of its operations in China, and Mattel, which has such facilities in operations in Indonesia.

The Los Angeles Unified School District in the United States is huge, ethnically and racially diverse, and comprised largely of low-income communities. In the 1990s, this vast district placed at least a few computers into most of its schools and gained some access to the Internet. Nevertheless, the

[20] "Call Africa and Wait and Wait and…", *The Economist*, 25 November 2000, London, United Kingdom.

district's progress in adopting computer technology was hindered by its capacity to use, service, maintain, and upgrade the modest computer resources. There were very few technicians for the district. There were long delays in getting technicians to schools facing even minor problems, and resources available for servicing and upgrading equipment were few and far between. Some enterprising teachers and students in a few of the high schools decided they needed to "grow" their capacity to fulfill the use and maintenance functions. Some schools developed teacher training programs. Other schools invested in programming to build students' capacity.

We are learning a great deal about how the use of community centers, simulation technology, and lower-tech tools can help people become more skilled in the use of newer technologies.

One program in particular, at Eagle Rock High School (2,500 students), has achieved impressive results in developing student's capacity to maintain, service, build, trouble-shoot, and continually improve the school's computer resources. Going well beyond basic service and maintenance, the students are refurbishing and selling computers, setting up networks, and providing services to other schools within the district. The program meets several objectives that benefit the student, the school, and the larger community and build capacity at several levels. The students are getting employment experience and skills (technical and entrepreneurial) that are clearly transferable. The school benefits from better maintenance, upgrading, and networking services, which in turn strengthen the school's computer infrastructure (and hopefully the quality of instruction too). The community benefits from its children having access to and training in computer technology, operations, and applications along with employment training and business development experience.

More subtle means of bridging the digital divide include efforts to diversify web content and culture. While many web-based projects are undertaken merely to facilitate cultural preservation and documentation of cultural history, knowledge, language, and practices, as these efforts inspire and create a more culturally diverse worldwide web, barriers resulting from its monocultural character (e.g., hegemony of English and Western experience) will begin to crumble.

The China Youth Development Foundation seeks to improve the quality of education for young people by supporting programs to promote creativity and innovation, to improve teachers' ability to integrate technology into the classroom effectively, and to improve the understanding of and to draw upon Chinese traditional culture and the moral lessons it teaches.

In Australia, IBM has undertaken a completely different sort of program in collaboration with the Victoria University of Technology in Melbourne, the Australian Centre for Computer Enhanced Learning, and the Westcap Mobile Classroom at Victoria University: children in a remote Aboriginal community are building their literacy skills by using computers in a project to write down local myths, legends, and stories.

Government plays a key role in promoting and formulating enlightened policy and regulations for the telecommunications industry and for economic and business development more generally.

Students in several indigenous communities in Northern Alaska are using the web, Internet, video, and interviews to elicit and document their tribal history, knowledge, language, and practices from elders. The project undertaken by the Northwest Arctic Borough School District in Kotzebue, Alaska promotes education and skills development in a culturally appropriate yet highly contemporary ("new economy") manner.

Part of the digital divide challenge is to achieve the right kind of policy and regulatory environment that promotes and improves access to new and emerging technologies. Government plays a key role in promoting and formulating enlightened policy and regulations for the telecommunications industry and for economic and business development more generally. For example, policies that promote access and private company market competition, quality, and reliable services to benefit consumers yield improved access for a country's population. On the other hand, policies that allow government officials to profit from selling concessions block access. This latter regulatory situation worsens the implications of the digital divide in many African countries.


WINDOWS
2000 !

In all of our countries, achieving the desired kinds of enlightened, consistent government policies and corresponding business and community organization practices on youth employment requires forums for ongoing dialogue and interaction among government, business, and civil society.

Developing the most effective youth employment opportunities requires each sector—government, business, and civil society—to play important roles independently and in partnership. There are numerous examples of sectoral programs and there are a growing number of cross-sector programs that seem promising. Still, there are few, if any, forums in which government, business, and civil society engage with one another around the challenge of youth development and youth employment. The Youth Employment Summit, to be held in Egypt in September 2002, aspires to be such a forum. What resources and capability does each sector offer?

There is a growing awareness that no number of effective programs operating at the grassroots level can overcome or even challenge the effects and implications of poorly conceived and implemented policy.

Government

Government brings information and data, policies, and programs — it can bring scale and the infrastructure needed to achieve scale. The government sector can maintain a strong involvement with youth employment: through local or national programs that provide incentives and support for businesses and community organizations to employ young workers; through public education systems, institutions, and facilities; through evaluation efforts; and through enlightened policies that protect youth workers and support their employment and community roles. The government sector can and should endeavor to evaluate national systems and programs to generate information upon which its population can make decisions and allocate resources more wisely and effectively.

Multilateral institutions that work closely with governments likewise can assist in generating knowledge through supporting evaluation efforts and through research that delivers learning and comparisons from around the world and reveals what works, how it works, and why.

Public policy and the regulatory environment are important factors at the local, national, and global levels. There is a growing awareness that no number of effective programs operating at the grassroots level can overcome or even challenge the effects and implications of poorly conceived and implemented policy. Put differently, a single policy change has the potential to greatly improve or undermine, in very little time, circumstances for youth and any positive results

a given target group may have gained from effective local youth employment programs.

Striving for enlightened and supportive government policies and regulations in, for example, education, youth development, youth employment, business and industrial development, telecommunications, economic development, and civil society, can contribute to vast improvements (or impediments) in achieving better youth development and employment opportunities. All sectors have a role to play in contributing to better policy. Certainly business and civil society perspectives and resources have to be engaged alongside government institutions if we are to achieve the most promising and effective public policy.

Canada has a specific youth employment strategy that provides a policy framework through which the knowledge and resources of all three sectors are engaged to create youth employment opportunities and achieve results. In the United States, the Job Training Partnership Act is a working collaboration among government, business and civil society organizations that provides funds and other incentives for youth employment programs.

The challenge is to create public policy and regulations that target consistent goals and objectives. There has been a policy battle in the United States over telecommunications policy and service in rural and isolated areas. If policies do not support the extension of services into isolated and rural areas, then this has implications for the access youth in these areas are likely to have to the Internet which, in turn, affects their employment prospects and opportunities.

In all of our countries, achieving the desired kinds of enlightened, consistent government policies and corresponding business and community organization practices on youth employment requires forums for ongoing dialogue and interaction among government, business, and civil society. There are all too few good examples of such forums within countries and at the global level.

Business

The business sector brings jobs, knowledge and expertise, new approaches and technologies, facilities, and resources to potential partnerships. The business sec-

tor can work to improve the quality and quantity of its youth employment practices, enlisting youth assistance and the assistance of government and civil society to achieve these goals. There are all sorts of ways the business sector can play its role effectively. One important role is direct employment. When companies have workers in the 15 to 24 age range, they should have policies and programs geared specifically toward the unique developmental needs and potential of this age group. At the same time, the young workers must be respected and compensated for their contribution to business success—their ideas should be encouraged and considered seriously, their skills and talents recognized. In the late 1980s and early 1990s, Toyota Corporation "received 2 million ideas annually from its workforce and implemented some 80 percent of them."[21] Many of these ideas came from younger members (18 to 30 years of age) of the company's workforce. Programs that link young workers with guides and mentors (often older, sometimes of the same age, sometimes younger) to lend direct and indirect support are very valuable.

When companies have workers in the 15 to 24 age range, they should have policies and programs geared specifically toward the unique developmental needs and potential of this age group.

In addition, programs that help young workers develop broader life skills to assist their civic, familial, and personal growth and development benefit the community while strengthening the individuals involved. IYF's partnership with Nike, Inc., Gap, Inc., and the World Bank through the Global Alliance for Workers and Communities aims to "help improve the lives, workplace experience and communities of workers [predominantly young females] in global manufacturing and service communities."[22] The effort involves a comprehensive, participatory assessment process that elicits information from workers in manufacturing facilities in several countries (Thailand, Vietnam, and Indonesia) on current conditions, future aspirations, and community needs: "then, training and other types of development assistance are provided in response to identified needs."[23] This is an example of how youth experience, ideas, and energy can be engaged to improve the company and the community.

There are many other ways the private business sector can support youth employment. Cooperative programs, internships and fellowships, scholarships, direct involvement in educational programs in collaboration with schools and community programs, and participation/investments in educational infrastructure (funding, equipment, facilities, teachers/mentors, policy initiatives) are some of the many ways business can participate. While a business can support isolated, independent efforts, there is growing interest and involvement in cross-sector partnerships in youth development and employment.

The ICWI Group Foundation (Insurance Company of the West Indies) in Jamaica established a Science Learning Centre in 1990 in collaboration with the University of the West Indies at its Mona Campus in Kingston. The Centre's mission

[21] Gross, Daniel, "Power of Suggestion," *Attaché*, October 2000, Pace Communications, Inc., Greensboro, North Carolina, U.S.A., 2000, p. 15.
[22] "About the Alliance" section on the Global Alliance web site (http://www.theglobalalliance.com).
[23] "Global Alliance for Workers and Communities," Progress Report, Volume 1, Number 3, July 2000, International Youth Foundation, Baltimore, Maryland, 2000.

is to provide hands-on learning opportunities for students, teachers, academics, and policymakers to enhance and reform science education. Since its inception, the Centre has served more than 42,000 students and 2,400 teachers directly in community outreach programs. The Foundation worked with several other national and international agencies to develop a program called SMILE (Science Matters in Life Everyday) to serve very young children (ages 3 to 6), teachers, and care givers. It now has seven major partners providing human and material resources for the program: the Ministry of Education and Culture, the University of the West Indies, Teacher Training Colleges, the Dudley Grant Memorial Trust, Jamaica Sustainable Development Network Programme, the Japanese Government, and UNICEF.

The Prince's Youth Business Trust (PYBT) in the United Kingdom boasts a "leverage ratio several times higher than many of the best venture capitalists" in its efforts to assist young people in starting their own enterprises.[25] PBYT supports about 4,000 young entrepreneurs a year, the majority of whom come from the long-term unemployed and other underserved populations. PYBT has a nationwide network of 37 business boards to assess proposals and more than 6,000 business volunteers, and partnerships with commercial banks that "enable PYBT to achieve an 8:1 leverage on the government's funding."[26]

Based on the growing need for young workers who have managerial experience and the innate interest that many young people have in the causes and opportunities within the civil society sector, the business world could benefit from active partnerships with community organizations that give young workers valuable experience in a broad range of responsibilities.

Civil Society

Civil society organizations (CSOs) — whether political, nonprofit/charitable, or civic — are also becoming more important players in the youth employment arena. They offer opportunities in societal research and development, specific learning laboratories, knowledge, and social relationships and networks.

CSOs have developed a vast range of job training programs. CSO job training programs are implemented in countries throughout the world, often on meager budgets. In underserved communities these CSO programs are often the only options youth might have for gaining job skills and corresponding employment opportunities.

CSOs themselves provide "on-the-job-training" to a growing number of young people. It is quite common for a youth's first job experience to be with a CSO, where she or he might work for a few years before going on to start an organization or business, join a company, take a government job, or return to school for additional education. Many of these programs represent valuable learning opportunities. CSO programs could be further strengthened with a more deliberate focus on skills building, expansion of the transferability of those skills,

[24] Information from the ICWI Group Foundation
[25] Nelson, Jane, *Business as Partners in Development*, p. 153
[26] Ibid.

and better links between the community organizations, business, and government that make the skills and experience the youth gain from these programs more visible.

Based on the growing need for young workers who have managerial experience and the innate interest that many young people have in the causes and opportunities within the civil society sector, the business world could benefit from active partnerships with community organizations that give young workers valuable experience in a broad range of responsibilities. In addition, businesses should consider helping these community organizations be as effective as they can be working with young workers and exposing them to the realities of the 21st century workforce by supporting internships and jobs at the CSOs, supporting job shadowing or immersion programs, participating in career day programs, and allowing youth and the CSOs to see business operations and learn more about the employment needs and opportunities in the businesses. Supporting the technology and communications infrastructure of community organizations that work directly with or employ youth is another way businesses can participate in youth employment programming. In many developing countries, particularly in isolated villages, CSOs may have the only computer(s) in the village and, thus, helping these CSOs provide access for the village youth to these computers can have profound benefits for the youth and the village.

The IYF partnership approach — emphasizing collaboration among businesses and civil society organizations — creates a promising model of a cross-sector collaboration that allows for the deliberate and spontaneous exchange of effective practices, support and leverage of results, sustainable and strategic connections between work and community life, and improvement in the conditions in which roughly one-half of the world's population live, work, learn, and play.

The IYF partnership approach — emphasizing collaboration among businesses and civil society organizations — creates a promising model of a cross-sector collaboration that allows for the deliberate and spontaneous exchange of effective practices, support and leverage of results...

The viability of the global free market system is conditioned on enlarging the pool of skilled workers rather than having a growing number of companies worldwide compete for a tiny, elite pool of highly skilled workers.

Youth are eager to embrace the Information Age, and they have the intellect and creativity needed to excel in this new era. Still, they need support from all sectors and from mentors and guides of all ages to ensure that their early employment experiences and opportunities place them on a path to personal development and success that benefits their employers and communities at the same time. To enhance youth employment in the Information Age, we need more and better incentive systems for youth employment opportunities.

The stakes are high. A 1999 UNICEF publication, *Generation in Jeopardy*, illustrates the adverse consequences of political and economic transition for children in Central and Eastern Europe. Poverty, particularly among children, has grown dramatically; life expectancy has dropped at an alarming rate from increased stress and suicide, among other factors; armed conflicts have escalated; previously controlled diseases have resurfaced; soaring food prices have increased malnutrition; schools have closed due to scarce funds, rising costs, and war; and HIV/AIDS is spreading at an alarming rate. In addition, drug use, crime, and prostitution are on the rise. Low morale and resentment are adding to circumstances of desperation and despair.[27] Such negative outcomes can only be prevented through the sustained engagement of all sectors in developing and supporting the kinds of positive policies and programs highlighted in the examples featured throughout this publication. Youth employment programs and opportunities enhance broader community and economic development strategies and results.

Most youth around the world will be deeply affected by the global transitions that take different forms in their countries and lives. The worsening economic conditions in many parts of the world will deliver the same grim results that the UNICEF publication reveals. Juxtaposed against the UNICEF report are the excitement and promise of a range of technological innovations, the Internet among them. Bridging these two worlds will be critical. Success will require new modes of collaboration among government, business, and civil society actors.

So, how do we get from where we are in youth employment practices and programming to where we want to be? There are several key messages for those involved in designing or implementing youth employment activities.

[27] Zouev, Alexandre, ed., *Generation in Jeopardy*, UNICEF, M.E. Sharp, Inc., Armonk, New York, U.S.A., 1999.

■ *Broaden and deepen the experience the youth have in the program.* For example, if the current program focuses on a single set of trade skills, provide opportunities to help young people master these skills and opportunities for youth to use these skills as a foundation for develop new ones: for example, management, marketing, and entrepreneurial skills. Help youth learn how to link what they know and learn to other skills, knowledge, and contexts.

■ *Help youth understand what they are learning by providing opportunities for them to demonstrate what they are learning, describe it, and teach it to others.* For example, if youth are involved in planning a rally or youth forum, help them understand what skills they are developing in the process: research, management, marketing, communication, record keeping, and program development. Challenge them to understand the transferability of their skills and learning. Encourage youth to train others to undertake the process the next time.

■ *Give youth the space and support they need to learn by doing – to try, to fail, to learn, to try again, and to succeed.* Create employment opportunities or program components that allow youth to think about their approach, plan a strategy, implement that strategy, and expose them to the consequences. For example, in a program or job that focuses on building skills, provide sufficient instruction, but then allow the youth to build things and learn from their attempts. Also help them understand the math, science, physics, and social skills involved in their efforts to complete that particular assignment. Stand back and watch, learn, and support the youth when they have questions or need additional guidance.

Youth employment is a vehicle for education, skills development, stability, better health, and community awareness and involvement. Giving youth a genuine stake and say in addressing the challenges of the digital divide, youth development, employment opportunities, and community and economic development are the surest ways to address these issues energetically, creatively, and with more success than we have ever had in the past.

The viability of the global free market system is conditioned on enlarging the pool of skilled workers rather than having a growing number of companies worldwide compete for a tiny, elite pool of highly skilled workers. Many existing policies and programs, at the firm level and even within some countries at the local and national level, are designed to help a small number of the most talented to become still more talented. Many companies have not developed links with community organizations and schools or the recruitment and maintenance policies that might ensure a growing number of capable, skilled youth and adults in

the workforce even in a dramatically changing global context. More interaction among the sectors on the issue of youth employment is greatly needed so each sector can develop an enlightened strategy for its own programs and so the strategies and collaborative efforts, collectively, better meet the needs of youth.

The many examples featured throughout this report inspire confidence that youth can benefit tremendously from the vast and exciting opportunities resulting from new information technologies. A fundamental commitment to giving young people the basic education and skills they need to thrive in the Information Age combined with a wide range of youth employment activities provide a strong foundation for ensuring that our youth will be prepared to handle the challenges and seize the opportunities they will face in life.

Assad, Marie and Bruce, Judith. *Empowering the Next Generation: Girls of the Maqattam Garbage Settlement.* New York: Population Council, 1998. www.popcouncil.org/seeds/seeds19.html

Explores the parallel challenge of extending earning opportunities and access to valued social roles to young women living in a highly traditional and marginalized community on the outskirts of Cairo.

Bennell, Paul. *Learning to Change: Skills Development Among the Economically Vulnerable and Socially Excluded in Developing Countries.* Geneva: ILO, 1998. http://www.ilo.org/public/english/employment/strat/publ/etp43.htm

Explores the role of training in assisting individuals who are economically vulnerable and socially excluded in developing countries in accordance with OECD target to halve poverty by 2015. Examines the training crisis, problems with designing and implementing training, and gives an overview for re-orienting training goals.

Burns, R.B. *Lifeskills in the Classroom: Preparing Students for their Future.* Hobart, Youth Studies, Australia: Bulletin of the National Clearinghouse for Youth Studies, 1991 v.10 n.1 pp. 44-49.

The move from an industrialized society to an information society requires a rethinking of the curriculum in its function of preparing young people for their future. The author argues that while the old basic skills are still necessary, we need to add to them the new basic skills - Portable Life Skills - that can be applied in a rapidly changing world of work, and that career guidance must be reformed to emphasize the development of a variety of skills and adaptable personalities.

Castro, Claudio de Moura. *Proyecto Joven: New Solutions and Some Surprises.* Washington, DC: IADB, 1999.

Describes a project to train unemployed youth in Argentina, where despite economic stability, job creation has languished and unemployment has continued to grow. Project conclusions include recognition of innovations at a management level, assessment of the benefits of internships to students, analysis of assessment strategies, and recognition of other benefits to trainees such as improved productivity.

Gomez, Joachim Victor. *Credit and Economic Activities of NGOs with Adolescents in Bangladesh.* New York: Population Council, 1996.

Aims to discover the participation of adolescent girls in the economic activities of NGOs in Bangladesh, especially in microfinancing.

Grubb, W. Norton. *Lessons from Education and Training for Youth: Five Precepts from the Transition from Education to the Labour Market.* France: OECD, 1999.

Addresses what kinds of education training and work experience might be effective focusing on youth rather than on adult programming. Reviews familiar job training programs, and why results have been meager or exemplary.

Hoppers, Wim. *Searching for Relevance: The Development of Work Orientation in Basic Education.* France: UNESCO, 1996.

Examines a number of case studies to illustrate how work-education programs have been reconsidered, gradually transformed, or have given way to other programs which are more closely integrated into general education. Discusses the planning and implementation issues at stake when introducing work orientation schemes.

Leonardos, Ana Cristina. *Non-Formal Vocational Training Programmes for Disadvantaged Youth and Their Insertion Into the World of Work: Towards a Framework for Analysis and Evaluation.* France: UNESCO, IIEP Occasional Paper no. 83, 1999.

This report depicts effective strategies and approaches that are being used in relation to the non-formal training and the insertion into work of an increasingly large population of disadvantaged youth that remains unemployed or underemployed in the rural towns or urban centers of the developing world.

Mitchell, Ayse G. *Strategic Training Partnerships Between the State and Enterprises.* Geneva: ILO, 1998. http://www.ilo.org/public/english/employment/strat/publ/etp19.htm

Based on 14 case studies, this paper gives examples of training partnerships in action and how they affect workforce development. This includes reforming training policies to meet labor market needs, collective financing, and partnerships which enhance equity.

Mkandawire, Richard M. *The Alienated, Disillusioned and Resilient Youth in Africa: Present and Future Employment Prospects Commonwealth.* Zambia: Youth Programme Africa Centre, 1997.

Surveys the well-being of African youth examining youth unemployment in a sociological context, both in urban and rural Africa. The paper highlights the problems faced by unemployed youth, and looks at the future prospect of work for young people in Africa in the context of globalization.

Ng, Gek-Boo. *Public Private Partnerships and Their Role in Promoting Youth Employment.* Geneva: ILO, 1999.

Summarizes the role of partnerships in promoting youth employment, questions which partnerships should be encouraged at different levels, and what type of government involvement is desirable.

Thematic Review of the Transition from Initial Education to Working Life. France: OECD, 2000. http://www.oecd.org//els/pdfs/Londonconf/execsumeng.pdf

Addresses questions such as how has young people's transition to working life changed during the 1990s and what policies and programs are effective in delivering successful transition outcomes for young people.

A Regional Study on Youth Enterprise and Entrepreneurship in Anglophone Africa in the 21st Century. Zambia: Commonwealth Youth Programme Africa Centre, IDRC, 1998.

Examines the effect of structural adjustment policies on employment in Anglophone Africa, especially the inability of a formal, largely urban based, sector to act as a labor "sponge," and the continuing decline of urban areas as a haven for the survival of people, especially youth.

Conceptual and Analytical Research Framework for Youth Enterprise and Entrepreneurship Development: Social Innovation Towards Sustainable Livelihoods for Youth, by the Assessment of Social Policy Reform Program Initiative. Zambia: IDRC Research Programs: Youth Livelihood, 1998. www.idrc.ca/socdev/research/youth/docs/framework.cfm

Working paper that discusses the methodology and goals of current and planned studies in Francophone and Anglophone Africa, and Latin America. Explores the broad socio-economic factors shaping development in each region with attention to youth enterprise and entrepreneurship themes.

Employing Youth: Promoting Employment-Intensive Growth. Geneva: ILO, 2000. http://www.ilo.org/public/english/employment/skills/targets/youth/sympo/tabcontn.htm

Assesses mechanisms that regulate the demand for labor and identifies strategies that can increase the possibilities of employment and the wages of the young. Summarizes work carried out under the Action Programme on Youth Unemployment (1996-1997 Conference), describes youth joblessness, and suggests programs to improve it.

Lessons Learned: 32 Effective Youth Employment Initiatives PEPNet '97. Washington, DC: National Youth Employment Coalition, 1997.

This paper lists the 1997 Effective Initiatives Awardees, chosen by peer review, and notes characteristics of exemplary youth employment programming that grantees share. Four elements in common among awardees were creative use of work, an emphasis on families, the value of the collaboration, and the quality of the program staff.

Photo Credits:

Children and Youth Foundation
of the Philippines

Elaine Little (donated)

Pedro Rubens

Georg Scharnweber

Simon Freeman

International Youth Foundation®

32 South Street, Suite 500
Baltimore, Maryland 21202 USA
Telephone: +1 410 951 1500
Fax: +1 410 347 1188
E-mail: youth@iyfnet.org
www.iyfnet.org

In cooperation with

NOKIA
CONNECTING PEOPLE