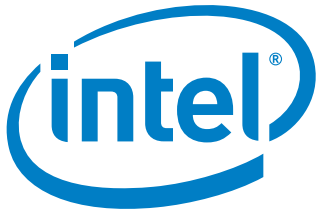

White Paper

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ICT, Education Reform, and Economic Growth

Introduction

Global economic and social trends over the past several decades have profound implications for educational reform and the use of technology in schools. The convergence of these trends has created significant economic and social opportunities but also enormous challenges. The pervasiveness of information and communication technologies (ICT)-from cell phones, to low-cost video cameras, personal digital assistants, and laptops wirelessly connected to the Internet-has changed the way people live, work, and play. New knowledge and the use of new technologies have resulted in the creation of new products, services, and jobs, some of which were unimaginable only a few decades ago. At the same time, trade agreements and the reduced costs of communication and transportation have increased the flow of capital, goods, services, knowledge-and jobs-between countries. The result has been significant worldwide economic growth but also considerable social turmoil and dislocation.

These converging trends have put tremendous stress on educational and other social systems responsible for preparing society for the future and moderating the adverse impact of social and economic change. In the face of these trends, countries are confronted with the need to rethink their educational systems in order to prepare students for the global economy, to maintain economic progress, and to assure that their citizens will benefit equitably from this growth. To participate in this economy and to improve their standard of living, students need to leave school with a deeper understanding of school subjects, particularly science, mathematics, and technology, and with the skills needed to respond to an unbounded but uncertain 21st century–skills to use their knowledge to think critically, to collaborate, to communicate, to solve problems, to create, and to continue to learn. The goal of this paper is to explore the relationships between ICT, education, and economic and social development and to suggest how policy makers and school administrators can best connect technology and education reform to sustained, equitable economic growth.

Economic Growth and the Knowledge Economy

Between 1996 and 2000, the economies of the world's 24 most developed countries grew at a per capita annual rate of 2.6%[1]. Between 1990 and 2003 the per capita GDP of developing countries grew by 1.9% a year[2]. Although the benefits of this growth were not evenly distributed across or within countries, many millions of people around the world increased their standard of living and millions moved out of poverty[3]. Even a small change in growth can make a huge difference in the economy. A 3% annual growth rate doubles the size of an economy in 23 years, compared to 35 years needed to double an economy with a 2% growth rate. With a 5% growth rate, it takes only 14 years. Creating the conditions that foster economic growth is a significant challenge for policymakers. But even more important is how to sustain growth over an extended period of time and assure that its benefits are distributed equitably.

Growth in economic output can occur with an increase in input factors: more equipment is purchased and more workers enter the labor force, what economists call *capital accumulation*. Or it can occur with an increase in the economic output per person, that is, an increase in *productivity*. Growth based on capital accumulation is subject to diminishing returns; additional increases in input result in smaller and smaller increases in output. Increased productivity is the key to raising the standard of living and to sustained growth. Economic theory describes three factors that can lead to increased productivity: capital deepening (that is, equipment that is more productive than earlier versions), *higher quality labor* (that is, a more knowledgeable workforce that is more productive), and technological innovation-the creation, distribution, and use of *new knowledge*.

The case of Singapore illustrates how growth can occur. Between 1970 and 1989 Singapore's per capita GDP grew at an impressive annual rate of 6.7%[4]. In the 1960's, the Government of Singapore decided to use the competitive advantage of its then low-wage labor and its strategically-located deep water port to develop its economy around the import of manufactured parts that would be assembled locally and re-exported as finished products-primarily computer components and consumer electronics. To accomplish this, the government invested savings from the nation's retirement program to build crucial infrastructure-port facilities, roads, airport, telecommunications, and industrial parks-that attracted additional private investment from transnational corporations that, in turn, built assembly facilities. However, by the early 1990's economists noted that much of Singapore's economic growth was due only to the accumulation of capital and labor rather than increased productivity, and they predicted that the country's growth would not be sustained[5]. In response to this, the government leveraged their initial economic gains to deepen their capital, primarily through attracting investments in new technology, and to improve the quality of their educational system, increasing students' understanding of science and mathematics, so as to support a more productive, technology-based economy.

Beyond capital deepening and higher quality labor there is the third productivity factor-technological innovation. Technological innovation is different from the introduction of technology equipment (i.e., new capital); it is the application of this technology to solve problems, increase efficiencies, develop new products and service, and create new knowledge. Knowledge has some special qualities that are important to economists. Unlike raw material it can be used multiple times without depreciated value and unlike equipment, it can be used by many people at the same time-that is, it is *non-rivalrous*. Knowledge can also be shared widely at little cost. These facts open the possibility of a productivity factor with compounding rather than diminishing returns. But technological innovation depends on both new technologies and a high quality workforce. It a specially prepared labor force that can take up these new technologies and ideas to create yet more innovation. The synergy between new capital, new skills, and new knowledge creates sustained growth and an improved standard of living. Through this synergy, new knowledge is not only the input but an output of the economy. The creation and sharing of new knowledge feed into the economy to generate a knowledge-driven, virtuous cycle of sustainable growth. This is the basis for what economists call the *knowledge economy*.

Finland is an excellent example of how these factors operate together to support sustained, equitable growth. In the early 1990s there was a significant recession throughout the Finnish economy with an average annual GDP growth rate of -3.68% from 1990 to 1993[6]. This set off a series of government policy decisions that helped create a fundamental structural transformation of the country's economy from that of a raw materials-based manufacturing economy to one that concentrated on high-tech products, particularly in the area of telecommunications. This resulted in a dramatic turn around with a per capita annual GDP growth rate of 4.39% from 1994 to 2000[7] and, along with Singapore, Finland became one of the most competitive economies in the world. During this period, unemployment was cut in half, the balance of trade moved from a large deficit to a significant surplus, and the value of Helsinki's stock market rose well over

200%. Most notably, this economic growth was accomplished without creating great disparities in income and it generated revenue to sustain a variety of social programs and services, such as universal health care and free education through the university level[8].

What were the policy decisions that supported this dramatic turn around? Early in the 1990's, the Government of Finland created a vision for a Finnish Information Society. In implementing this vision, they made investments in technological infrastructure, education, and research and development, emphasizing the creation and sharing of new knowledge. Public research and development investments grew rapidly during this period, funded by revenue from the privatization of uncompetitive state-owned enterprises, and these investments were structured to encourage cross-sector, private-public collaborations in research and innovation. Private research and development investments grew at an even faster pace and Finland became a world leader in the support of research and development. The government encouraged entrepreneurial activity and the development of small and medium enterprises (SMEs) by supporting incubators for start-ups and by promoting capital investments and knowledge sharing between SMEs and large businesses. Knowledge sharing within and between organizations and companies in turn encouraged innovation and competition in product development and production. The result was broad-based growth with one of the world's lowest differentials between high and low income wage earners.

Singapore, on the other hand, has had one of the world's highest income differentials. Economists noted that Singapore's early economic strategy created silos of capital deepening, narrowly concentrated within transnational corporations, and its growth was not broad-based. Ultimately Singapore, too, picked up on the technological innovation productivity factor. In the late 1990s, the country's economic development plan shifted toward a knowledge-based economy and broader-based economic participation. In conjunction with this shift, the Education Ministry instituted a number of reforms to improve the quality of their education system and support students' development of critical thinking, creativity, and enterprise. The plan also strengthened the connections between school, home, and community, as part of a larger social development plan that encouraged a more active participation of citizens in community life and economic innovation.

Education and its Contribution to Economic Growth

Quality education has a high social value in both Singapore and Finland, as evidenced by the fact that their students consistently score among the highest of all students in the world on international assessments. Education also has a high economic value. This is supported by the results of both international micro and macro-economic studies. Microeconomic studies focus on the benefit of educational investments to individuals while macroeconomic studies focus on returns to the economy more generally. Microeconomic data from 42 countries found that an average rate of return for an additional year of schooling was a 9.7% increase in personal income[9]. A cross-country macroeconomic study found that there was an additional .44% growth in a country's per capita GDP for each additional average year of attained schooling, a return on investment of 7%[10]. Other studies have found returns that go as high as 12%[11]. The *quality* of education had an even stronger relationship to growth than did the duration of school participation; the *amount learned* was more important than the number of years of schooling. Higher test scores of one standard deviation equated to 1% growth in per capita GDP[12].

However, the limitation of both microeconomic and macroeconomic studies is that they treat the educational system as a black box. They do not describe *how* curriculum, teaching, assessment, teacher quality, or the use of ICT can actually influence what it is that students know and are able to do as a result of their educational experience or how these education factors contribute to economic growth and social development. Yet the details of these connections are very important to educational policymakers who are charged with trying to prepare citizens to participate in the knowledge

economy and information society and create a workforce that is globally competitive. What kind of education reform will contribute to sustained and equitable economic growth? How can teachers and schools better prepare students to meet the challenges of the future? What are the skills students will need to succeed in the 21st century global economy and information society?

A number of academic and business groups have commented on these questions[13]. In order to be more productive and to contribute to society, students will need to understand what they learn deeply enough to use it to solve the complex problems they will encounter in the real world. They will also need to be able to use technology, manage information, communicate effectively, think critically, work well in teams, and produce new intellectual and creative works that have value to others. Perhaps most importantly, they will need the skills to continuously learn and create new knowledge throughout their lives. These are the skills that students will need in the 21st century.

Approaches to Building 21st Century Skills

Faced with global social and economic changes, many governments around the world are reforming their educational systems. Typically these efforts take on one of three patterns of change. Some educational reform focuses on improving education by increasing *knowledge acquisition.* The emphasis in this approach is on quantity rather than quality. The goal is to boost enrollments, decrease dropouts, extend the school day, and increase the amount of knowledge that students acquire, particularly in reading and math. But few other things change in the system. Knowledge is still compartmentalized by traditional subjects and measured on standardized tests that include simple one-part problems with one correct answer. Higher scores on these tests are equated with more learning. Yet, it is not clear how these traditional school subjects and assessment tasks correspond to situations and problems that students will encounter when they leave school and enter the real world. This approach does not include the learning of 21st century knowledge and skills that would make students more productive and innovative. So the connection between increased knowledge acquisition and a higher performing economy and more equitable society is unclear.

On the other hand, there are two ways in which education reform can develop 21st century skills and contribute to economic growth and an increased standard of living. One is through what can be called *knowledge deepening.* The traditional curriculum is bounded by school experience; knowledge of school subjects remains inert and cannot be applied outside the class or contribute to productivity or innovation. But the knowledge deepening approach leads to the improved economic productivity of students by deepening their understanding of school subjects and making these subjects more relevant to the problems and challenges of the real world. Learning inside school is connected to out-of-school examples and experiences. Knowledge deepening also goes beyond the memorization of isolated facts and the solution of simple problems that permeates the standard curriculum to emphasize the learning of complex concepts, principles, and procedures that lead to a higher quality, better prepared workforce and higher value jobs. Rather than the superficial "coverage" of a large number of topics, the curriculum focuses on a smaller number of key concepts, principles, and procedures and on how these ideas are organized and interconnected within and across subject areas to form complex knowledge systems. Extended assessments consisting of several parts parallel the complex tasks students will encounter in the real world and these assessments call for the adaptive application of concepts, principles, and procedures that cut across subject domains to fit the circumstances of novel problem situations-mathematics, science, language, and reasoning are all used together rather than tested separately.

Singapore provides an example of the knowledge deepening approach. From the beginning of Singapore's modern economic development, the government tasked the education system to supply targeted economic sectors with skills necessary for their labor force. Anticipated skill needs were translated into production goals for secondary, polytechnic, and university institutions. Early in their development, these goals focused on the knowledge acquisition strategy. Primary and secondary enrollments rose dramatically and the curriculum focused on increasing skills in literacy and numeracy. But as the initial, low-wage, export-based strategy achieved full employment and the economic development policy shifted toward high

value-added production, the government upgraded its education requirements. In an example of knowledge deepening, secondary schools were targeted to produce higher levels of skills in science, mathematics, and language and universities were to produce more engineers and scientists.

The second approach to developing 21st century skills is *knowledge creation*. If students are to participate in an economy and society in which the creation, sharing, and use of new knowledge are the basis for sustained development, their educational preparation must go beyond the learning of established knowledge. Knowledge creation does not conflict with knowledge deepening; rather, it builds on a base of deep understanding of school subjects. Beyond the learning of key concepts and principles and their use to solve complex problems, students engage in the sustained, collaborative process of building on current knowledge to create and share new knowledge. Knowledge creation skills include the ability to use a range of technology tools; to search for, organize, and analyze information; to communicate effectively in a variety of forms; to collaborate with others of diverse skills and backgrounds; and to think critically, innovatively, and creatively. But paramount among the knowledge creation skills are those that allow students to continue their learning throughout their lifetime: their ability to set their own goals, determine what they already know, assess their strengths and weaknesses, design a learning plan, stay on task, track their own progress, and build on successes and adjust to failures. These skills will enable students to sustain their own personal development and contribute to that of the economy and society in a constantly changing world.

Finland's Ministry of Education attributes the country's excellent performance on international assessments to widespread access to high quality education across the country, high quality teachers with a high degree of autonomy, development-oriented assessment that gives students feedback on their progress, and to an approach to education that treats students as autonomous learners who are guided to develop their study skills and plan their life career. The Ministry conceptualizes learning as an individual and community process of knowledge creation, a skills- and goal-oriented process that includes independent and collaborative problem solving. School experiences are connected to the outside world through internships and apprenticeships. Singapore too is now moving in this direction and their curriculum has been broadened beyond a set of core knowledge to include information skills, critical thinking skills, creativity, communication skills, knowledge application skills, and self-management skills. To develop these skills and attitudes, cross-discipline project work was introduced into the classrooms in Singapore. Assessments were revised to measure students' skills in analyzing and applying information, thinking, and communicating.

Moving Toward Knowledge Creation

How should other countries respond to the global trends that have taken us into the 21st century? In their details, each response will be unique and will depend on a nation's history, social priorities, resources, and political will. But Table 1 presents policymakers with a set of options organized around the three approaches and their implications for the various components of the educational system. Examining these options from the perspective of a specific country can illustrate the implications of these alternatives.

Egypt is an example of a country contemplating its future in the 21st century. In response to the global trends mentioned above, Egypt is in the process of social and economic reform. The government recently instituted modest electoral reform and it is transitioning from a heavily state-directed economy to a less regulated, more open one. In August of 2004, the new Prime Minister presented an economic development strategy, entitled Egypt's "Information Society Initiative," that would provide equal access for all to information technology, nurture human capital, improve social services, promote Egyptian culture, and support economic development. This strategy would develop Egypt's technological innovation, improve productivity, and foster economic growth. However, there are significant challenges to achieving this vision. The country needs to further open trade, increase investment in infrastructure, move the economic base up the value chain, liberalize the telecommunications sector, increase civic participation, address rural development, and so on. Furthermore, illiteracy is high in Egypt and the penetration of ICT is low, particularly in the rural areas. If Egypt's information society strategy is to succeed, education reform will play an important role and the government acknowledges this. What changes might

need to be made in Egypt's education system to move the country toward an information society and sustained economic and social development?

Knowledge Acquisition

Currently in Egypt, the teaching, curriculum, and textbooks all emphasize the memorization of isolated facts and the application of principles disconnected from the real world. High-stakes student examinations also emphasize memorization. Lecture is the dominant mode of instruction and government inspectors assure that teachers are faithful to the content and schedule of the curriculum. The use of ICT in schools is minimal and reinforces the curricular and pedagogical emphasis on rote learning. The knowledge acquisition approach might be tempting to policymakers and even parents because it focuses on increased scores on the high-stakes tests that have traditionally been used to determine a student's educational future. This reform strategy is more compatible with Egypt's current system, with its emphasis on the faithful implementation of a standard curriculum. The approach would involve fewer and less disruptive changes in assessment, curriculum, teaching, teacher training, and school organization. By focusing on the efficient delivery of the standard curriculum, the introduction of technology into schools could demonstrate a commitment to the information society without disrupting current school practices. However, as tempting as this approach is, merely increasing enrollments and test scores will not move Egypt toward their goal of an information society and a knowledge economy. The biggest problem with the knowledge acquisition approach is its lack of connection to economic and social development. Students who score high on tests of memorization will not be prepared to enter a workforce that aspires to create growth through the generation of new knowledge.

Knowledge Deepening

Egypt would take an important step toward its social and economic goals by using the knowledge deepening approach to reform. The key to knowledge deepening would be a move from a curriculum that focuses on the memorization of isolated facts and disconnected principles to understanding the deep interrelationships between concepts, facts, and principles and their application in everyday life, the type of knowledge that can contribute to improved productivity and increased growth. This reform can be particularly effective if policies are coordinated within the education system-curriculum changes correspond to changes in assessment and teaching-as well as coordinated with policies in other ministries responsible for workforce planning, economic growth, and social development. Classroom activities and projects that engage students in the solution of extended, open-ended, real world problems are an important component of this approach. For older students, internships and apprenticeships can extend classroom learning outside of the school context and schedule. Because this type of learning is more complex, teachers would need to improve both their understanding of their subject area as well as the processes students employ and problems they face when they engage in this type of learning. Technology can also play an important role, as students use visualizations and simulations to explore, understand, and apply complex knowledge. Networking can help teachers and students connect classroom activities and learning to the outside world. Flexibility in school schedules and curriculum implementation can support these classroom efforts.

For Egypt, the implementation of this approach to reform would require a major effort to change the assessment system. Despite the effort required, change in this area is crucial because assessment often drives classroom practices, regardless of the formal curriculum. This change itself has both technical and social challenges, given the important role that assessment currently plays in Egyptian education. It would require a significant investment in upgrading teacher pedagogical and subject matter knowledge, as well as their ability to integrate technology into the curriculum.

Knowledge Creation

The greatest challenge for the Egyptian educational system will be making the ultimate transition into the knowledge creation approach to reform. Yet this is the challenge set by their national economic and social strategy. If Egypt is to be an information society and develop a knowledge economy, Egyptian society must be focused on research, development, and the creation and sharing of new knowledge. Learning must be a continuous process for knowledge generation and innovation to drive economic growth and social development. A knowledge economy requires widespread social participation in the generation and use of knowledge products. This would mean nothing less than a major societal transformation. A variety of social and political reforms would be necessary in Egypt to increase civic participation and foster the creation and exchange of new knowledge. But schools, teachers, and students could play a central role in this scheme.

In time, the Egyptian education system could build on gains won with the knowledge deepening approach to make further changes in their curriculum, teaching practices, assessments, and use of technology. Students could build on their deep knowledge of school subjects and their own learning goals to develop skills in collaboration, inquiry, information management, critical thinking and creatively apply these skills to generate new knowledge and support their contin-

ued learning. These skills could be fostered by collaborative investigations and research projects in which students designed and developed intellectual and creative works that could be shared with others inside and outside of school. Teachers could model and otherwise support this process through guidance, mentoring, and coaching. Students could be centrally involved in assessing the quality of their own and each others' learning, as they are guided by teachers to develop and increasingly refine their understanding of what constitutes a high quality contribution of new knowledge. This would prepare students to be lifelong learners. It would also be a major advance over the current assessment practices in Egypt. The penetration of technology throughout society would need to increase significantly. Increased availability of ICT in schools, homes, businesses, and social venues would allow students to use a variety of tools and digital resources to support their inquiries and create knowledge products that draw on and add to the knowledge and works of others inside and outside the school. As part of this approach, teachers could leverage their deep pedagogical and subject matter knowledge to engage in continuous experimentation and innovation within their classrooms so as to generate best practices and exchange them with colleagues. As such, teachers would lead the way in working with administrators, students, and community members to transform schools into learning communities that serve as model organizations for the rest of the information society.

Conclusions

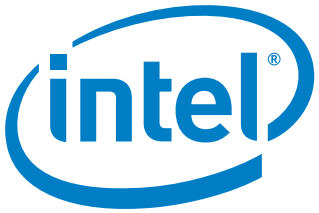
Policymakers and ministry officials face many important decisions, as they cope with sweeping global trends. None is more important to economic and social development than those they make in education policy. By examining the relationships between reforms in curriculum, teaching, assessment, the use of ICT, teacher training, and school organization, and by aligning these changes with important economic and social goals, policymakers can leverage public investments to move from knowledge acquisition to knowledge creation. Early gains in deepening the knowledge of students and teachers can be leveraged to transform schools into learning communities and provide students with 21st century skills. The widespread ability to think critically, communicate effectively, use technology, work well in teams, learn continuously, and produce new intellectual and creative works is the basis for sustained and equitable economic growth.

		Developing 21st Century Skills	
	Knowledge Acquisition	**Knowledge Deepening**	**Knowledge Creation**
Policies	Education policies focus on increasing students' scores on standardized tests, primarily in reading and math. Policies align curriculum, teaching, and assessment but these are not aligned with economic needs or social development policies.	Education policies focus on upgrading the quality of education and the productivity of the workforce by improving the understanding and problem solving skills of students and connecting school learning to real world problems and contexts. Policies align components within the education system with social and economic development.	Education policies are focused on the research, development, the generation and sharing of new knowledge, and continuous learning. Schools, teachers, and students participate in these endeavors. Knowledge generation, learning, and innovation drive the knowledge economy, sustain economic growth, and support social development.
Curriculum	The curriculum enumerates a large number of facts and concepts within school subjects and emphasizes their acquisition.	The curriculum identifies key, interelated concepts and principles that organize the subject area. It emphasizes deep understanding of these within and across subjects and their application to solve complex real world problems. Curriculum implementation is responsive to local contexts.	The curriculum is flexible and responsive to student goals and local contexts. It emphasizes the development of collaboration, inquiry, information management, creativity, and critical thinking skills. Learning how to learn is essential.
Teaching Practices	Teaching is focused on information delivery. Lectures are common but information may be presented in a variety of forms. Alternatively, instruction can be individualized and self-paced.	Teaching is conducted in the context of complex, open-ended questions and problems and it is anchored in real world contexts. Classroom activities involve the application of key concepts and principles to analyze systems and solve problems across subjects. Internships and apprenticeships can be an important way to connect school learning to the real world.	Teaching consists of challenging students to build on their knowledge and explore new topics. Collaborative projects and investigations involve searching for information, collecting and analyzing data, generating knowledge products, and communicating with outside experts and audiences to share results.
Assessment	Assessments are composed of a large number of brief tasks that require the recall of facts and the application of principles to solve simple, one-part problems. Accuracy is emphasized. Students are tested frequently and receive regular feedback on progress.	Assessments are composed of a few extended, open-ended, multi-part problem-based projects that embed key concepts and principles and correspond to real world situations. These tasks are integrated into the learning experience.	Assessment tasks consist of investigations, reports, presentations, creative works, and other knowledge products. These products are evaluated through self, peer, and public review, as well as expert review. Assessments also emphasize student goal setting and self monitoring.
ICT Use	Technology is used primarily to deliver instruction and support administration and accountability.	Technology is used to support deep understanding of interrelated concepts, address misconceptions, explore systems, solve problems, and connect students and teachers to outside contexts.	Technology is used to support knowledge production, collaboration, and knowledge sharing by students and teachers and help them build knowledge communities.

Table 1. Education Reform, ICT, and Economic and Social Development

		Developing 21st Century Skills	
	Knowledge Acquisition	**Knowledge Deepening**	**Knowledge Creation**
ICT Infrastructure	A low ratio of students per multimedia computer is desirable to allow for maximun one-on-one access but broadcast media or media-supported lectures may be sufficient for most purposes. Stand-alone work stations are sufficient for instructional delivery but networking supports management and accountability and can also provide web-delivered instruction.	Deep understanding of key concepts can benefit from simulations, visualizations, multimedia applications. Workstations can provide resources for solving problems; relatively few may be needed. Networking can connect the classroom to outside contexts and situations.	Technology is pervasive. Browsers and data tools allow students and teachers to search for, organize, and analyze information. Word processors, graphics packages, and multimedia tools allow them to create reports and presentations. Networks and email allow them to collaborate and share information.
Teachers	Teachers have a comprehensive knowledge of curriculum goals and materials. A minimum knowledge of technology is sufficient. However, they are required to have a detailed knowledge of their subject.	Teachers have a deep understanding of key concepts and principles, knowledge of student learning process and their typical misconceptions these concepts, proficiency in motivating students with challenging, real world problems and in supporting learning with open-ended questions. Skill in using technology is important.	Teachers are able to model the inquiry and learning processes. They are proficient in coaching and guiding inquiry and collaboration. They continuously experiment and innovate in their classes and share best practices. Extensive skill in the application of a variety of technological tools is essential.
Professional Development	Teacher training emphasizes the comprehensiveness and accuracy of teacher subject knowledge. Teachers may be tested on this as part of certification. Continuing professional development may not be required if mastery is achieved.	Professional development emphasizes both the deepening of teachers' subject knowledge as well as their understanding of student learning processes. This is done through a combination of continuing formal and informal informal experiences.	As experienced professionals, teachers are primarily responsible for their own and each others' development, as colleagues and mentors. They collaborate with each other and with outside experts to build a professional community. They are engaged in creating and sharing their own body of professional knowledge and best practices.
School Organization	Schools are hierarchically structured with a high level of accountability and little autonomy or flexibility. Curriculum inspectors assure the curriculum is covered as prescribed. School and teacher performance is measured and rewarded by student test score gains.	Teachers have flexibility over implementing the curriculum and making it responsive to student interests, community needs, and contemporary issues. Structural flexibility allows teachers to adjust student groups or the class schedule to allow more time for projects, planning, and collaboration.	Schools are learning organizations and teachers are engaged in continuous innovation. Administrators, community members, teachers, and students create a shared vision and goals for their learning community. Within this vision, teachers have autonomy in implementing goals and accountability for results.

Table 1. Education Reform, ICT, and Economic and Social Development (continued)



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