**Understanding Each Other: Education in 21st Century Asia**

By Angela Y. Lin

**I. Introduction**

“If language be the clothing of life, no child should be sent naked into the world.”

- Danie Fader

And so is true of education.

Though societies have existed for thousands of years without modern conceptions of education, the changing nature of the world has given rise to education as it exists today. That is, education has become a more structured and institutionalized process that often consists of years of schooling or a lifetime of learning, and that serves as a means to different ends, depending on the specific environments in which we live.

But while it may have evolved into a more systematic experience over time, education still forms the basis of much thought, communication, and interaction, and can be expected to continually adapt to meet the needs of people. As we encounter the challenges of the 21st century and negotiate the complexities of the Information Age, these needs will only become more demanding as we are influenced by technology and the greater interconnectedness of nations and their peoples. Our new knowledge societies require more flexibility in their educational structures to adapt more readily to new styles of learning and teaching, new intellectual and social needs, and new levels of skill development and productivity.

In looking at education in Asia, we must ask whether the existing educational systems provide adequate preparation for all people to succeed in the knowledge economy and assess the corresponding opportunities for progress and change. Are Asians prepared for the knowledge society? Are our educational methods fostering creativity and innovation? Is there a distinct Asian approach to education?

To prepare us for fruitful discussions at the conference, this briefing provides an overview of education in Asia and some of the challenges that lie ahead. The highlighted issues and questions are intended to spark new ideas to be shared with the rest of the delegates. In this century, the need for quality in education becomes more important than ever. Before reading on, consider the following question: What is your vision for education in your country? During the course of the workshop, we will try to help you cultivate that vision.
II. Where Are We Now?

Assessing the Importance of Education

In a knowledge society, education is a necessary tool for development in the social, political, and economic spheres. People of all ages need to be given the proper preparation and practical skills to ensure that they do their part to help their country survive in an increasingly sophisticated and competitive world stage. They must know how to negotiate their lives in the context of a changing society, and stand to benefit from an understanding of themselves as well as others. Simply put, education is the vehicle through which people can become productive citizens and thus actively participate in their societies.

An Overview of Education in Asia

Asian countries are at varying stages of educational development, ranging from the still-developing systems such as that of China, India, and the Philippines, to the more sophisticated systems of Japan and Singapore. Because of these disparities, it is difficult to generalize about the state of Asian education as a whole. Nevertheless, a few themes do exist that characterize the region’s attitude towards education. In particular, international and regional conferences have shown that differences and commonalities among countries, rather than being a source of intellectual conflict, are a source of enormous interest. Country and cultural diversity translate into incentives for sharing experiences in an environment of mutual learning between participants, and encourage the discovery of common concerns through discussion. In addition, countries seem to favor regional cooperation and the sharing of experiences as a means of attaining quality education for everyone and of facing the challenges of globalization.

Beyond these major themes, there are no sweeping generalizations to be made about education in Asia. We can, however, use the state of curriculum reform as a specific means of comparing education across many of the countries of South and Southeast Asia. Appendix I serves as an overview of such reforms and is by no means exhaustive. It is meant to provide a backdrop for further discussion online and at the conference. You are encouraged to expand upon these observations and apply them to analyses of other countries in Asia.

Please now refer to Appendix II – Country Comparisons for an in-depth look at education in China, India, Japan, Philippines, and Singapore. During the workshop, you will be expected to have a basic understanding of the variety of educational systems in Asia and the philosophies upon which they are based.

2 Drawn from “World Data on Education,” International Bureau of Education, UNESCO.
**Challenges to Education**

It is easy enough to say that education is an important priority for everyone, but it is another task to make sure that everyone actually has access to it. A variety of challenges, including cultural, economic, and political constraints, can easily limit access to education. While some developing countries lack solid educational structures, others simply suffer from economic disparities, cultural differences, or political unrest. The noticeable gap between rich and poor, rural and urban, and haves and have-nots; the historical consequences of colonization; and the results of governmental conflict; often translate into a story of those with privilege and those without. Moreover, the proliferation of modern technology and the growing presence of the so-called ‘digital divide’ has only served to exacerbate such inequalities. Such circumstances call for new and innovative solutions. Think about some of the challenges that citizens of your country may face, and whether there are ways to increase access to education.

**III. What Can We Do?**

With a better understanding of education and curricular reform as it exists in Asia, we now move on to examine potential tools for achieving our vision of education for the future. In preparation for the discussion and interactive exercises that will take place over the course of the workshop, we shall now consider two main challenges that arise when tackling the issue of education in 21st century Asia: education reform and the relationship between technology and education.

**Education Reform**

Though the fundamental need for education never disappears, the exact goals of education vary with time and circumstance. A country’s educational system is therefore subject to continuous transformation in order to adapt to these changes. As the countries and citizens of Asia begin to embrace the knowledge economy, they must also recognize the multitude of challenges posed by the changing nature of education in the 21st century in order to implement effective solutions. This section of the briefing is designed to provide an overview of the most common types of education reforms, their potential pros and cons, and some of the hurdles faced when implementing change.

**Standards-Based/Curriculum Reform**

Education reform can occur anywhere from the national, local, and institutional levels to the classroom level. One of the most widely implemented reforms comes in the shape of standards. There are two types of standards: content and performance. Though performance standards are important as measures of achievement, carefully designed content standards form the core of quality education because they provide clear learning and teaching expectations. Content standards attempt to shape learning from both the top down and the bottom up by identifying specific concepts that are expected knowledge of
every subject and at every level of education, and are thus closely tied to curricula reform.

Just as the educational goals of preparation and intellectual development are continually defined and redefined, so exists an on-going preoccupation for educators in all countries to develop and reform school curricula. The dawn of the new millennium has given a sense of renewed urgency to government efforts on the local and national levels to provide all citizens with access to a basic, quality education. In addition to improving and widening access to secondary education, educational authorities are being called upon for guidance and leadership in the area of curriculum reform. Curriculum and content standards-based reform thus usually exist (or are implemented) in general as well as in specific areas as math, science, history, and language arts, and include added expectations as students progress from elementary through to secondary and higher education. Some countries have nation-wide standards while others have standards that vary by state or locale. The main issue thus occurs in the actual implementation of reform, since great oversight is necessary to make certain that content standards are followed, and great care must be taken when designing curricula. Ideally, by following a curriculum that is based on rich, demanding, and rigorous standards, teachers, students, parents, administrators, test-developers, and text authors will share a set of common, well-defined goals and are therefore better prepared for progress in the classroom.

Content standards are commonly evaluated through student assessment. The type of assessment given usually depends on the specific objectives one has in mind. In choosing an assessment strategy, educators often look to those that match their nation’s educational goals, target the content standards that need to be assessed, and allow the kinds of interpretations education officials wish to make about student performance. By choosing the right form of assessment, administrators are able to supervise school progress, allocate money efficiently, and thus capitalize on the benefits associated with student assessment.

Historically speaking, the first attempt at large-scale student assessment took place in 1904 when Alfred Binet used his theories of intelligence testing to develop a scale for identifying mentally retarded children in France. The goal was to identify such children so that they might be afforded special instruction and attention. Almost a century later, as accountability becomes an increasingly significant issue in education all over the world, evaluative tests targeted towards the general student population are becoming more prevalent. Although students can be assessed in a variety of ways, testing, in particular, is definitely on the rise. This is due not only to the increased call for accountability, but also because of the benefits it provides (personal, practical, and economic) for students, teachers, parents, schools, and states.

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Testing is often used for three basic purposes: ranking, student placement, and the improvement of learning, instruction, or an institution. The main benefit of testing is that its results are observable. Ideally, it can help place students in appropriate levels that will enhance their learning process; help teachers better allocate their time and understand specific student needs; provide parents with a measure of school quality; indicate individual school progress; and show states the most efficient methods of school expenditure. Of course, these goals are not always met through testing alone; they are best attained when assessment is coupled with meaningful content standards and concrete goals.

Although beneficial, testing must be administered with caution. Educators must be aware of the negative consequences of student assessment, especially with regard to three issues: testing among the primary grades, high-stakes testing for graduation, and incentive-based assessment programs. For example, in the United States, students are typically tested for the first time between ages 5 and 7 in an effort to gauge their readiness for school or their preliminary knowledge of basic skills. Assessing students at such an early age, however, especially with standardized testing instruments, runs the risks of lowered self-esteem, unnecessary and incorrect labeling, and distortion of curriculum. Similarly, high-stakes (graduation-dependent) testing runs the risk of distorting curricula at the secondary school level. When tests play a significant role in school accountability and in grade advancement they often become the school curriculum. In the end, any sort of educational reform poses costs and benefits to those it affects. An important question then remains – Do the benefits of testing greatly outweigh the costs, and thus make the potential risks associated with student assessment worthwhile?

Incentive-Based Reform

Incentive-based reform is another popular policy instrument, especially for those who believe that a school’s financing should be linked to the quality of education provided. Incentives are used to hold schools, teachers, and administrators accountable for performance and quality, and are often granted on the basis of test results. Among the most common incentives are public recognition and monetary rewards. Such rewards are given for individual teacher merit, student merit, successful schools, high-performing school districts, and even school support staff.

Though economic incentives have been shown to lead to gains in performance, they can also lead to corruption among students and teachers. One of the most readily observable negative consequences of testing is linked to incentive-based reform. Such programs can prove detrimental to teacher morale and student achievement. Teachers held directly

accountable for student results often succumb to temptations of “teaching to the test,” while students often end up learning the test curriculum rather than the designated one. These risks must therefore be taken into account when deciding whether or not to implement incentive-based reform. A possible solution is to rely less heavily on testing and either tie funding to school success rates (such as graduation rates) or have the power to reform (or even close down) certain schools deemed inadequate.

Offering incentives and disincentives in the form of recognition (both positive and negative) and rewards is an effective approach to holding schools accountable for the academic performance of their students, and thus answers the increased call for accountability. Such programs can be used to improve school management and provide motivational incentives for schools to improve their quality of education. If school funding and resources depend directly on student progress and achievement, then schools are more likely to focus on such goals. To proponents of school-choice, public schools are seen as a monopoly, and private and charter schools are helpful competition. In terms of assessment, testing serves as a type of competition that can make for increased quality of education. Schools that have negative test results will have more incentive to undertake improvement programs if held accountable to standards and viewed in comparison to other schools’ performance. Thus, incentive programs serve as observable signals that help schools compete efficiently with one another, such as they would in a choice-based school system.

**Equity Reform**

Equity reform often refers to the idea of ‘school choice.’ The term itself refers to the idea of giving parents the power and opportunity to choose the school their child will attend, and therefore translates into the potential for better educational opportunities. This ‘market’ for schools is expected to maximize consumer utility for education and fosters competition that is intended to increase school quality.

A variety of school choice programs exist:

**School vouchers**

School vouchers (a type of full school choice program) provide parents with a portion of the public educational funding allotted for their child to attend school, and allow them to use those funds to attend the school of their choice. It gives them the fiscal authority to send their child to the educational institution that best suits their child, whether it is a religious or parochial school, another private school, or a neighborhood or magnet public school. These programs empower the family and, in so doing, infuse consumer accountability into the traditional public schools system.

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10 [http://edreform.com/](http://edreform.com/)
Private scholarship programs

Private scholarship programs provide low-income children with the same educational opportunities that wealthier families enjoy by paying a portion of the tuition for a child to attend a private scholarship school. To qualify, the applicant usually needs to be from a family that qualifies for the federal free-or reduced-price lunch program and living in the district which the program has been set up to serve. In the United States, student-sponsor programs, boarding school programs, religiously affiliated school aid programs, and community scholarship programs have been providing parents choices for years. Examples abound of organizations, individuals, and archdioceses helping out needy children through a variety of programs, but a common thread runs throughout – putting the child above the system and providing the children of all families the educational opportunity already enjoyed by those with wealth. The private scholarship program thus provides opportunities for quality education where none existed before by making the excellence of the private sector available to families of lower socio-economic status, and therefore enhances students’ likelihood of having productive and successful futures.

Charter schools

Operating on the principles of choice, accountability, and autonomy, charter schools provide unique services, or deliver services in ways that the traditional public schools do not offer. They are independent public schools, designed and operated by educators, parents, community leaders, educational entrepreneurs and others, and are often sponsored by designated local or state educational organizations who monitor their quality and integrity, but allow them to operate freed from the traditional bureaucratic and regulatory red tape that plagues public schools. Freed from such micromanagement, charter schools design and deliver programs tailored to educational excellence and community needs. Because they are schools of choice, they are held to the highest level of accountability – consumer demand.

The idea of school choice re-asserts the rights of the parent and the best interests of the child over the convenience of the system, infuses accountability and quality into the system, and provides educational opportunity where none existed before. However, though such programs encourage parental involvement and high expectations by giving parents the option to educate their children as they see fit, they also create a socio-economic division between the ‘haves’ and the ‘have-nots.’ In Asia and elsewhere, children are usually assigned to a school according to the location of their home and the demarcation of a school district. In some countries, however, people of means already have school choice. Those who are wealthy and/or well-connected have either the privilege of moving to an area where school quality is high, or they can choose to enroll their child in a private school. In most of these countries, parents without such means simply have no choice but to send their children to the assigned school, regardless of school-quality considerations. Policies such as school vouchers remedy this problem to a certain degree, but are still mostly in the experimental stages.11

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11 Caroline Hoxby, Evidence on School Choice: What We Learn from the Traditional Forms of School Choice in the U.S.
Studies indicate that public schools do react to competition by offering better schooling and reducing costs. Increased competition results in significant improvements in student test scores, educational attainments, and wages. Not surprisingly, parents with greater choice are generally more involved in their child’s schooling and prefer a higher standard of achievement for both their children (academic achievement) and their chosen school (standards and discipline).\textsuperscript{12} Overall, however, is school choice a favorable equity reform?

\textit{Improving Teacher Quality}

Teacher reforms are usually focused on improving the professional quality of schoolteachers. Such improvements come mainly in the form of better teacher education and preparation, increased standards in teacher assessment, licensing, and hiring, and accountability requirements that are often tied to student performance and school funding. Both qualitative and quantitative analyses suggest that policy investments in the quality of teachers may be related to improvements in student performance. Quantitative analyses indicate that measures of teacher preparation and certification are by far the strongest correlates of student achievement in reading and mathematics, both before and after controlling for student poverty and language status. Analysis suggests that policies adopted by states regarding teacher education, licensing, hiring, and professional development may make an important difference in the qualifications and capacities that teachers bring to their work.

In addition, it is important to create incentives for people to enter the teaching profession, provide training and working conditions that encourage experienced teachers to serve as mentors to younger colleagues and give feedback to one another, offer salaries that are competitive with those of professionals in other fields, and accord teachers the same level of respect as other professionals. Firstly, if teaching is viewed as an attractive (and/or potentially lucrative) career, then it will more than likely draw the best and the brightest into competition for such jobs. Teachers can then only benefit from others’ respect for their professional autonomy. Secondly, fostering mentoring relationships will help the inexperienced teachers develop personally and professionally by learning from the experienced. Also, if teachers spend fewer hours in the classroom and more time on class preparation, intellectual pursuits, and positive interaction with other teachers, they are likely to be better teachers during those hours they do spend in the classroom.

Though improving teacher quality is an important part of improving student education, the problem with such top-down measures as accountability requirements is that they often distort teacher incentives. By imposing increasingly stringent requirements such as more rigorous testing and according personal responsibility for standardized test results, disincentives are created as teachers are drawn away from established curriculum, and administrators focus on numbers rather than on improving individual teacher quality.

\textsuperscript{12} Caroline Hoxby, Evidence on School Choice: What We Learn from the Traditional Forms of School Choice in the U.S.
Technology and Education

With the advent of the Internet and the ever-expanding applications for technology in everyday life, it should come as no surprise that technology has and will continue to alter the ways in which our students learn for decades to come. The following overview serves to highlight the current and potential uses for technology in the context of 21st century education, and is intended to provide you with basic knowledge of the issues involved with technology and education. In our attempts to maximize its effectiveness and pursue new possibilities for the knowledge economy, however, it is just (if not more) important to be aware of both the consequences and the benefits of technology on education. The challenge is in figuring out how best to take advantage of technological advancements.

One of the main goals of education is to help students gain the knowledge and skills to address both routine and novel problems and tasks outside of the classroom setting. People solve problems and accomplish tasks drawing on the resources that they have available, such as their personal physical and mental resources. They also draw on the knowledge and skills of other people, information from books, and tools. In recent years, information technology has become a routine tool for many people working to accomplish complex tasks.13

Information technology (IT) affects education in three distinct ways: 1) IT is a subject matter; 2) IT provides tools that are useful in all school subject areas; and 3) IT can be used to help students learn. Therefore, when we discuss what kinds of technology to buy, how it should be installed, what type of training should be implemented, and who is available to teach in schools, it is important to be clear about what kinds of uses we have in mind.

Computer and Information Science

In this sense, technology itself is the subject. Computer programming is the main activity. Before the personal-computer software industry developed, using a computer meant learning to program it. Today, this is a specialty area of study for students with particular interests in technology. Knowledge of computer science will be important particularly

13 The following information is drawn from the ISTE.
http://www.iste.org/research/background/Overview.html
for those interested in entering this field of study. For most students, the following two uses of IT are more directly applicable.

*Computer as Tool*

The computer is a useful and versatile mind tool. It can be used to help solve the problems and accomplish the tasks that are at the center of many different academic disciplines. Computer tools for education can be divided into three categories:

1) **Generic Tools**

Software programs such as word processors, spreadsheets, database managers, and graphics packages cut across many disciplines. A student who learns to use these tools can apply them in almost every area of intellectual work. The Internet (which includes e-mail and the Web) is a set of generic tools that are proving useful even to students in elementary school. Generic tools – generally packaged with computers or purchased by schools as site licenses – are relatively inexpensive and widely available. They are also used by teachers to maintain gradebooks, archive exam questions, prepare individualized education plans for students with disabilities, word-process lesson plans and handouts, and deliver overhead presentations. When used in these capacities, generic tools provide practical skills and make classrooms more efficient.

2) **Subject-specific Tools**

These are tools designed for a particular discipline. Examples include hardware and software to aid in musical composition and performance, mechanical drawing and graphics design, digital animation, and digital film production. These special-purpose tools tend to be expensive. In schools, they are generally found in special programs at the high school or collegiate level.

3) **Learner-centered Tools**

These tools focus on "learning to learn." Recently, multimedia and Web authoring software has been used for this purpose. Students practice problem-solving and creative strategies as they use the software to create programs and presentations. Learner-centered software tools are not particularly expensive. The main limitation to this use of technology is professional development: Teachers need to be proficient with both technology and project-based learning strategies to incorporate computer-based learner-centered activities on a regular basis.

*Information Technology-Assisted Learning*

This section includes three different uses of IT to directly support learning. Computer-assisted learning (CAL) is the interaction between a student and a computer system designed to help the student learn. Computer-assisted research is the use of IT as an aid to doing library and empirical research. Distance learning is the use of telecommunications designed to facilitate student learning.

1) **Computer-Assisted Learning**
Over the past 40 years, CAL has been given many different names, such as computer-based instruction and computer-assisted instruction. The CAL name is intended to emphasize "learning" rather than just "instruction." CAL includes drill and practice, tutorial, simulation, and a variety of virtual reality environments that are designed to help students learn. Early CAL programs were essentially electronic versions of student worksheets. Current CAL software is highly interactive, able to track and respond to student answers with new problems.

The most comprehensive CAL environments are so-called “integrated learning systems” (ILS) that include tutorials, tests, reference materials, and student tracking software tied together on a computer network. An ILS represents a major commitment for a school in terms of funding and instructional program.

2) Computer-assisted Research

There are two major categories of computer-assisted research in schools. First, there is the use of CD-ROM materials and electronic databases on the Web. Although there are legitimate concerns about monitoring and advising students as they explore online, computer-assisted research empowers students and teachers with increased access to information. With the growing use of electronic databases to store information, skill in electronic searching is becoming a basic intellectual tool.

A special type of computer-assisted research is the use of computerized instrumentation to gather data. Microcomputer-based laboratory (MBL) tools such as temperature probes allow students to record data that can be imported directly into spreadsheets or other software for analysis.

3) Distance Learning

Distance learning is rapidly growing in use and importance. Through the use of telecommunications, students and instructors can be connected in a two-way audio and a one-way or two-way video network that allows real-time interaction. The Web is increasingly being used to provide the needed connectivity. Often such instruction is asynchronous (not real-time), making use of videotapes or materials stored on a computer. This adds to the convenience for the student. In a Web-based course, students interact with each other and the instructors—students may do group projects—even though they may be located at different places around the world. In addition, CAL and distance education can provide students access to courses that are not available in a teacher-delivered mode in their schools.

As distance education continues to evolve, here are current topics of debate. Feel free to use them as a springboard for thoughtful discussion and/or further research.

- **Supportive infrastructure.** How can educators create an environment for distance learners that provides the support that they require to succeed?
- **Quality faculty development/support.** Teaching at a distance is different from traditional teaching. How can faculty be best prepared?
- **Student development.** Students need new and different skills to succeed in distance education.
• **Telling the truth.** Because of the long-standing bias against distance education, practitioners must be scrupulously honest in their portrayal of opportunities and benefits of distance education programs.

• **Education through a variety of means (multiple options).** How can a blend of technologies and programs benefit the student?

• **Competitive education market.** Because of the proliferation of telecommunications- and web-based programs, distance education is available from a wide variety of providers, creating much competition in a field formerly defined by geographic regions.

• **Curriculum-driven technology decisions.** The focus is shifting away from available technology and towards content as the linchpin for distance education delivery mechanism decisions.

• **Focus on faculty, staff and learner development.** There is a growing recognition that distance education programs must prepare everyone involved in the enterprise for maximum efficacy.

**Goals for Information Technology in Education**

Before implementing any of the above information technology, schools must first develop a concrete set of goals for selecting, using, and evaluating the types of IT that will be most valuable and effective for its students. There are two common methods for establishing IT goals. The first approach is to develop or adopt specific standards for IT use. The second approach is to examine how students might take advantage of appropriate technology tools in different real-life situations.

**Standards**

Just as schools formulate a curriculum based on content standards, the introduction of information technology into the classroom setting requires that they also formulate standards for its use. One way of doing this is similar to the idea of performance standards – that is, establishing a guideline of expected achievement according to grade level. Following is an example of such standards for students in grades 2, 5, 8, and 12 drawn from the United States’ National Education Technology Standards (NETS) project. As you read through them, consider whether or not these standards are compatible to those established in your own country.

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**The Capable Technology-Using Student Completing Grade 2:**

Technology knowledge and skills mastered at this level will be applied and reinforced at each subsequent grade level. Before completing Grade 2, students will be able to:

1. Use input devices (e.g., mouse, keyboard, remote control) and output devices (e.g., monitor, printer) to successfully operate computers, VCRs, audio tapes, telephones, and

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other technologies.

2. Use a variety of media and technology resources for directed and independent learning activities.

3. Use technology resources (e.g., puzzles, logical thinking programs, writing tools, digital cameras, drawing tools) for problem solving, communication, and illustration of thoughts, ideas, and stories.

The Capable Technology-Using Student Completing Grade 5:
Technology knowledge and skills mastered at this and preceding levels will be applied and reinforced at each subsequent grade level. Before completing Grade 5, students will be able to:

1. Use general-purpose productivity tools and peripherals to support personal productivity, to remediate skill deficits, and to facilitate learning throughout the curriculum.

2. Use technology tools (e.g., multimedia authoring, presentation, Web tools, digital cameras, scanners) for individual and collaborative writing, communication, and publishing activities to create knowledge products for audiences inside and outside the classroom.

3. Use telecommunications efficiently and effectively to access remote information and communicate with others in support of direct and independent learning and for pursuit of personal interests.

The Capable Technology-Using Student Completing Grade 8:
Technology knowledge and skills mastered at this and preceding levels will be applied and reinforced at each subsequent grade level. Before completing Grade 8, students will be able to:

1. Collaborate with peers, experts, and others using telecommunications and collaborative tools to investigate curriculum-related problems, issues, and information and to develop solutions or products for audiences inside and outside the classroom.

2. Design, develop, publish and present products (e.g., Web pages, video tapes) using technology resources that demonstrate and communicate curriculum concepts to
audiences inside and outside the classroom.

3. Use content-specific tools, software and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research.

The Capable Technology-Using Student Completing Grade 12:
Technology knowledge and skills mastered at this and preceding levels will be applied and reinforced in post-secondary education and in life. Before completing Grade 12, students will be able to:

1. Collaborate with peers, experts, and others to contribute to a content-related knowledge base by using technology to compile, synthesize, produce, and disseminate information, models, and other creative works.

2. Routinely and efficiently use on-line information resources to meet needs for collaboration, research, publications, communications, and productivity.

3. Identify capabilities and limitations of contemporary and emerging technology resources and assess the potential of these systems and services to address personal, lifelong learning, and workplace needs.

Technology as a Tool
Implementing technology in education obviously goes beyond establishing guidelines – schools must move on to considerations of how technology will actually be used in the classroom, and must thus consider both first and second-order applications of technology. Earlier, we examined the use of computers as a classroom tool – a tool which has first and second-order applications. A first-order application is, in essence, the amplification of an existing practice. Students can utilize computers to do tasks that were previously completed either by hand or with non-computer equipment. For example, students can use word processors to write essays. Early word processors were much like electric typewriters but had advantages in terms of editing and storing documents. They were an amplification of the typewriter. The transition from typing to word processing required little formal training.

A second-order application, in contrast, moves beyond amplification to create new ways of working that are above and beyond what could be done before. In this type of application, students are able to do much more than was possible without technology. Continuing our example, we see that the design, graphics, and typesetting involved in desktop publishing represent a huge range of knowledge and skills beyond those of mere typing. Computers make it possible for a student to carry out all of these tasks, but it
requires talent, learning, and long experience to become a desktop publishing specialist. Desktop publishing is a movement far beyond using the computer as a typewriter. Second-order applications thus have the potential for creating substantial change and improvement in classroom settings.

When computers were first introduced into the classroom, they were employed as first-order applications. Students learned to use computers to do things that they had already learned to do by hand, such as write papers, make calculations, or complete worksheets. However, it soon became apparent that students could move beyond first-order applications to use technology in much the same way as adults for research, creation, and communication. Coupled with the establishment of concrete standards for the use of information technology, the ability to take full advantage of technology in a given (i.e. classroom) situation creates great potential for educational practices of the future.

People and Tools

The key issue in the instructional use of technology is distinguishing what students should learn to do mentally; versus what they should learn to do assisted by simple aids such as books, pencil, and paper; versus what they should learn to do assisted by more sophisticated aids such as calculators, computers, and other IT. This much seems clear: Thinking, problem posing (deciding what problems to solve), and understanding the human condition and values can be done better by people than by machines. The role of information technology is to support these skills. IT is of steadily increasing importance in solving problems and accomplishing tasks in business, industry, research, and government. A person who knows how to make effective use of IT has many advantages over a person who does not. Keep the afore-mentioned models and applications in mind as we carry our discussion online and into the workshop. For more information, refer to the Resources section of this briefing.

IV. What Lies Ahead?

Though the challenges of educational reform and incorporating technology into learning are weighty, one of the greatest challenges that lies ahead is that of globalization. In the words of the Honorable Jacques Hallak, Assistant Director-General of UNESCO and Director of the International Bureau of Education,

“The globalization of economies and societies raises a new challenge, requiring the adaptation of educational content to meet both national demand and international concerns.”

How are we, as individual countries, to negotiate the variety of actors and influences – both national and international – involved in the delivery of education? How are we, as individual citizens, to reconcile the educational philosophies of our own cultures with those of other nations? Recent trends indicate the emergence of new concepts and norms for educational content. As modern advancements, media, and technology continue to make it possible for people to view each other, the tendency to judge countries according to international standards will only become stronger.
“In the future, new strategies will best be discovered collaboratively across countries. Taking full respect of the diversity of cultures, languages and country’s education systems, the search will not be for uniformity, but the outcome will be enriched by understanding the experiences of others.”

There is no question that as interaction among countries increases, education in Asia will need to rise to new standards in order to provide its citizens with the necessary background and preparation to gain entrance and, more importantly, to succeed in the knowledge economy of the 21st century. But how do we determine these standards? What constitutes the ‘necessary background and preparation’? How do we go about improving our educational systems? Should we be concerned with international standards or should we focus on local development? Is there a trade-off between the two? What can we do to achieve our visions of education for the future, and in the process, learn to better understand each other?

The scope of these questions is indeed broad, and you are not expected to have already come up with solutions. With the premise that there are no easy answers, this briefing outlined potential tools for shaping education in Asia that will serve as a springboard for discussion as we carry this conversation online and into the workshop sessions.

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15 Hallak, G8 conference in Geneva, 2000
V. Appendices

Appendix I – Curriculum Reform

Let us examine the extent of curriculum reform in the following countries: Bangladesh, Bhutan, India, Indonesia, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, and Vietnam.

- Some countries are restructuring their curricula after several years of following an unchanged curriculum, as in the case of Vietnam and Thailand which are preparing to introduce major reform. Such initiatives may be the result of major socio-political and/or economic change. These countries are in the process of gradually redesigning their entire curricula; establishing new aims, purposes and goals; and redefining content. To assist them in this process they are interested in international experiments on methods of curriculum design and implementation, and in identifying the latest trends and ideas prevailing in the field of educational content.

- Some countries such as Sri Lanka are in the process of introducing reforms. Most others (for e.g. Bangladesh, Bhutan, India, Indonesia, Maldives, Nepal and the Philippines) have undertaken important curricular reform in recent years in order to improve the efficiency and effectiveness of their education systems, and respond more adequately to the needs of their societies. These countries are now consolidating or reviewing their reforms. They are concerned about the production of relevant didactic materials and how to use them to the best advantage in the classroom. Pre- and in-service training of teachers and school inspectors is a major priority. Some countries are engaged in an evaluation and monitoring phase and are searching for methods and tools to assess the outcome of the reforms implemented.

- A country such as Malaysia has indicated an established system of ongoing curricular renewal and adaptation in order to incorporate new areas of content and teaching methods as demands arise, particularly in response to the new challenges of the twenty-first century (i.e. globalization, scientific progress, technological evolution, environmental awareness).

- While the dominant structure of curriculum development among the participant countries is centralized, there seems to be a genuine concern for both decentralization and wider participation in curriculum change. There are convergent signals indicating political will to mobilize non-institutional actors – such as teacher unions, parent associations, representatives of the private sector – to participate in the design and implementation of curricula.

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16 These conclusions are drawn directly from the final assessment of the “Intensive Sub-Regional Course on Curriculum Development,” New Delhi, 9-17 March 1999.
Appendix II - Country Comparisons

China

Principles and general objectives of education

In general terms, education in the People’s Republic of China must serve the socialist modernization drive, be integrated with production and labor, and foster builders and successors with all-round development in moral, intellectual and physical education.

The Chinese government holds persistently the idea that education is the essential pre-condition for the all-round development of mankind. Article 46 of the Constitution of People’s Republic of China stipulates that all citizens have the right and obligation to pursue education. Article 9 of the Education Law (1995) stipulates that the citizens have equal opportunities of education regardless of nationality, race, sex, occupation, social conditions and religious belief. The Law on Compulsory Education (1986) stipulates that the State, society, schools and families guarantee the right to education of school-age children and adolescents.

Current educational priorities and concerns

Generally speaking, educational reform fails to meet the needs of the modernization drive. The existing education system, especially the systems of school operation, management and investment, and enrollment and employment regimes of universities still lag behind the demands of the economic reform. The education system and operational mechanism can hardly accommodate the needs arising from the establishment of the socialist market economy.

The principal objectives of educational development in China up to the year 2010 are: (a) education attainment for all people should be markedly better, and a basic socialist education framework shaped according Chinese characteristics and oriented to serve the needs of the twenty-first century, should be put into place; (b) nine-year compulsory education should become universal and there should be no more illiterates among youth and adults; (c) senior secondary education should be expanded; (d) vocational education and adult education should be developed more energetically; (e) the percentage of people with higher education should be close to that of developed countries; (f) education at various levels should enjoy better conditions under which operate schools, and both the quality and efficiency of education should be improved.

The specific goals for educational development are as follows:

• The remaining illiterates should become literate and a functional literacy program should be launched to reduce the illiteracy rate among youths and adults to about 1%, so as to increase adult literacy rate to over 90%.

• A nine-year compulsory education should be achieved in regions where 90-95% of the population live; kindergarten enrollment rate should reach 50%. Primary schools should have an enrollment of 130 million, while junior secondary schools should have an enrollment at 63 million, with an enrollment rate of about 95%.

• Regions following the eight-year primary program and junior secondary schools shall gradually introduce the nine-year compulsory program; regions where the school admission age is 7 years or above shall strive to lower the admission age to 6 years.

• Enrollment at various types of senior secondary schools shall be increased to about 34 million, with an enrollment rate of over 50%.

• The number of students enrolled in higher education institutions should be increased to around 9.5 million, with an average of 700 university students per 100,000 people, and with a gross enrollment rate of about 11%. Post-

17 The following educational profile summaries are drawn directly from “World Data on Education,” International Bureau of Education, UNESCO.
graduate programmes should accommodate 300,000 students and over 100,000 people should be awarded master’s and doctoral degrees of every year.

- Pre-service and in-service training, job-transfer training and continuing education should be further developed, so as to establish a comprehensive, modern system of social education and lifelong education, adapted to the requirements arising from the socialist market economy, employment pressure and increasingly greater sophistication of the people.

The former education system, organized according a planned economy, played a positive role in the past. But it can no longer adapt itself to the new environment, as a result of the establishing of a socialist market economy. It is, therefore, essential that the reform of the education system should be accelerated, in order to make it compatible with the requirements of the new environment. Over the past two years, the ongoing reforms of the economic, political, scientific and technological systems in China has had enormous impact on the education system.

The requirements, as well as the impact on education, from the adoption of a socialist market economy in China, are primarily reflected in the following aspects:

- Reform of the educational management system, by replacing highly centralized with decentralized management under the macro-guidance of the central government.

- Reform of the school system, by replacing the previous system under which the government was solely responsible for schools with a system under which the various sectors of society participate in school administration to complement government’s efforts.

- Reform of the education financing system, by transforming the single funding source (the government) into diversified sources for education financing with a view to gradually establishing a system under which the principal source, namely state appropriations, is supplemented by other channels of education financing.

- Reform of educational philosophy, contents and methods.

- Reform of the school management system, by ushering into the schools a system of independent school administration, self-development, self-motivation and self-restraining.

- Reform of the former school administration system operated by state-owned enterprises. In their efforts to establish modern enterprises regime, the large and medium-sized state-owned enterprises shall gradually spin off the primary and secondary schools they are operating. All enterprises must conduct vocational education and training.

In June 1994, the Central Committee of the Communist Party of China and the State Council convened the National Conference on Education. The Conference put forward that: eradicating illiteracy and universalizing nine-year compulsory education by the end of the century will be listed as the first priority; energetically developing vocational and adult education is the only approach for enhancing labour quality and a prosperous economy; at the higher education level, enhancement of quality and efficiency of education provision is a key issue. The Conference also defined policies, guidelines and measures relating to several important issues, such as improvement of moral education, enhancement of education quality, strengthening teacher training and educational legislation.

In order to adapt to the socialist modernization drive, education in China will be reformed and developed in accordance with the overall plan established at the 1994 National Conference on Education and the Outlines for Educational Reform and Development. The overall plan contains several key points: “realization of Two Primaries; establishment of Two Keys; forcefully developing vocational and adult education; strengthening and improving the moral education and guaranteeing the basic conditions.” These are the core of the overall plan for educational reform and development.

The general objectives of the educational reform are: to stimulate the enthusiasm of all social sectors in education provision; explore effective approaches for education development adapted to the actual conditions of the country; enhance education quality and efficiency of school operations; gradually formulate a socialist education system adapted to the socialist market economy and to the characteristics of modern education.
The system where schools are operated by the government will be changed into a system where education provision is mainly rendered by the government but also supplemented by all social sectors. The functions of the government will change from direct management to macro-level control by laws, plans, budget allocation, information service, policy guidance and necessary administrative means.

Compulsory education is provided free of charge and at the stage of non-compulsory education (higher education, general senior secondary and secondary vocational education) the system of tuition fees will be adopted. Standard tuition fees will be established in accordance with the different conditions of all types of education and the economic capacity of citizens. A system of scholarships, loans, free-of-charge, and work-study programmes will be adopted in higher education institutions, specialized secondary schools and skilled workers’ schools, so as to provide financial assistance to needy students.

More efforts will be made to transform and reform teaching content and methods. Use should be made of the new developments of culture, science and technology to update teaching content, adjust curricula, and improve quality of education and learning achievement. Based on the transmission of basic knowledge and basic theories, as well as on the training in basic skills, great attention should be paid to the building of students’ capacity to analyze and solve problems and to adapt to the social developments, so that the basic quality of students can be enhanced in an all-round way.

**Structure and organization of the education system**

**Pre-school education**

Kindergartens enroll children at age 3+, and the length of schooling is 3 years. Pre-school education (one-year course before the primary education stage) is not compulsory.

**Primary education**

Three systems co-exist for primary and lower secondary education: the 6+3 system, the 5+4 system and the nine-year system, with the 6+3 system predominating in most areas. Thus, the length of schooling for primary education is six or five years, and for lower secondary education, four or three years. Children start school at the age of 6 or 7, and enter lower secondary schools at the age of 12 or 13.

**Secondary education**

The starting age for upper secondary schools is 15 or 16, and the length of schooling is three years. For secondary specialized schools, there are two different possibilities. For schools that enroll lower secondary school graduates, the starting age is 15 or 16; the length of schooling is four years for most schools, and three years for the rest. For schools that enroll upper secondary school graduates, the starting age is below 22; the length of schooling is usually three years and, for upper secondary vocational schools, two or three years (exceptionally four years).

Full-time undergraduate courses at higher education institutions last four or five years (seven or eight years for medical universities), and the length of short-cycle courses is two or three years.

The starting age for graduate education is below 40 for master’s degree programmes, and below 45 for doctoral degree programmes. The length of courses is two or three years for master’s programmes, and three years for most doctoral programmes. Schools for adults follow the same schooling system as the corresponding ordinary schools. Secondary school courses for adults have the same length as the ordinary secondary schools for full-time students, and are one year longer for part-time students. The length of undergraduate courses at higher education institutions for adults is usually four or five years. Short-cycle courses take many forms and the length of courses is usually between two and four years.

The school year at the primary and secondary levels is divided into two terms, with the first term beginning in autumn (September), and the second term beginning in spring (usually in March). Each school year normally includes thirty-four working weeks.
As far as higher education is concerned, the academic year consists of thirty-six weeks of classes (eighteen weeks for each of the two terms), two or three weeks for general review and tests, and eleven weeks for winter and summer vacations. A number of higher education institutions which have adopted the credit system follow a different approach, with the school year divided into three terms, in order to strengthen practical teaching.

**The financing of education**

State budgetary allocation is the main source of funds for education in the country, consisting of allocations from the central treasury and those from local treasuries. In general, educational services run and administered by local governments are financed by local budgets, while the central treasury provides funding for schools under the jurisdiction of SEDC, central ministries and agencies, and special allocations for particular aspects of educational development.

In spite of the many financial difficulties, in 1995-96 the level of educational input has risen considerably, giving more evidence to the importance attached by government at all levels to education. However, 90 percent of the increase in the recurrent expenditure on education in the fiscal budget is spent on personnel costs.

While increasing the input of financial resources directed to education, the government has attempted to raise funds for education through a variety of channels. These channels mainly include: (i) urban and rural educational surcharges collected by local governments; (ii) expenditure on education by factories and enterprises; (iii) funds raised among various social groups, public organizations and individual citizens, as well as donations; (iv) fees paid by students; and (v) income from school-run enterprises and work-study programmes.

Article 53 of the Education Law stipulates that the State will establish a system with government budget allocation as the main funding source, supplemented by multi-approaches for raising funds for education. At present, in addition to the financial input from enterprises, individuals and social bodies, the main approaches for raising education funds are as follows: finance, extra fees tuition, industry, fund-raising, donations and monetary approach.

**The educational process**

The Education Law stipulates that Chinese is the basic instructional language for schools and other educational institutions. In schools and educational institutions mainly attended by ethnic minority students, the ethnic minority language or the local language can be used in teaching activities.

**Pre-primary education**

Pre-school education is a one-year course before the primary stage and is the preparation for school education. The State Education Commission is preparing a regulation concerning the kindergarten curriculum. For pre-school classes, instructional time is no more than twelve periods per week and each period is no longer than thirty minutes. No tests or examinations are conducted at the pre-school level.

**Primary education**

The curriculum of primary education comprises academic subjects and practical activities, determined at State and province levels. The curriculum set forth by the State is the compulsory core curriculum, including: moral education; Chinese language; mathematics; study of the society; study of the nature; sports; music; arts; and labour. Some schools with the necessary capacities also offer foreign languages teaching. The local curriculum mainly aims at facilitating the local economic and cultural development and is arranged by the educational authorities of provinces, autonomous regions and municipalities directly under the Central Government. Schools are authorized to arrange the local curriculum, both in academic and activity aspects, as compulsory or alternative courses.

In primary and junior secondary schools qualification examinations are conducted at the end of each term, at the end of the school year and for graduation.

Primary graduation includes an examination in language and mathematics and only check-ups for the other courses. When students pass exams in language and mathematics and are up to the standard in physical education, they graduate. The primary graduation exams are under the guidance of the county educational departments. Normally,
schools will design the examination papers; in rural townships the education department will be responsible for designing of examination papers. In the areas where the nine-year compulsory education is achieved, there is no entrance examination for junior secondary education.

Secondary education

At the junior secondary level, the following subjects are taught: morality and politics, Chinese language, mathematics, foreign language, history, geography, physics, chemistry, biology, sports, arts and labour, as well as short-term vocational guidance.

At the general senior secondary level, the following subjects are taught: politics, Chinese, mathematics, foreign language, physics, chemistry, biology, history, geography, sports, arts and labour skills. All subjects are determined by the State and politics, mathematics, language, sports, arts and labour skills are compulsory. Other subjects could be either compulsory or alternative.

The subjects of junior secondary graduation examinations are selected among those of the graduating grade; other subjects are checked only. The design of examination papers is determined by education departments and education commissions of provinces, autonomous regions and municipalities directly under the central government.

The qualification examination system is adopted at the general secondary stage. Exams and checks are combined. The subjects for the examination are: language, mathematics, foreign language, politics, physics, chemistry, biology, history and geography. The subjects for check-ups are: labour skills, experiment and operation of physics, chemistry, and biology. Examination in physical education is conducted in accordance with a uniform syllabus. The examination papers are prepared by provinces, autonomous regions and municipalities. Their responsibilities also cover exam organizing, paper correcting, collecting and analysing of statistics, and results reporting. The check-up papers are prepared by the county and city education departments according to the examinations norms.

At present there are five types of vocational schools in China: higher education vocational schools (86); specialized secondary schools (4,049); schools for skilled workers (4,507); senior secondary vocational schools (8,612); and junior secondary vocational schools (1,535). Among them, the secondary technical and vocational schools (specialized secondary schools, skilled workers schools and senior secondary schools) are the main stream of vocational education and their total number is 17,168. In addition, there are more than 2,000 pre-service training centres throughout the country.

In 1993, the various secondary vocational schools nationwide amounted to 16,842 with a total enrollment of 7,623,300 students, an increase of 795,100 compared with 1992. In 1993, students in all types of secondary vocational schools represented 53.7% of the enrollment in middle schools as a whole, an increase of 5% over the 49% in 1992.

The specialties in vocational schools cover the main positions and jobs in the first, second and third industries such as: engineering, agriculture, forestry, health and medicine, finance, management, politics, arts, physical education and others. There are 186 and 518 specialties in higher education vocational schools and specialized secondary schools, respectively. The number of specialties in skilled workers schools and secondary vocational schools is over 3,000.

At present, measures are being taken to establish a system of double certificates oriented to vocational education. When students receive their diplomas, the authorities concerned will check their skills in accordance with their specialties and then the qualified students will receive the vocational qualification certificate or the technical-grade certificate. These measures have been implemented in skilled workers schools and senior secondary vocational schools and will be implemented in some specialized secondary schools.

Higher education

The Provisional Regulation on Admission to General Institutions of Higher Education, promulgated by the State Education Commission, stipulates that a system of unitary entrance examinations for general higher education will be adopted, namely, unitary design of examination papers, unitary tests, unitary qualification for registers and
subjects, as well as the checking methods for morals and standards for physical constitution. The unitary policies
and principles for comprehensive examination in moral, intellectual and physical education will be formulated, so as
to admit the best students. In accordance with the unitary regulations, provinces, autonomous regions and
municipalities are responsible for registration, tests, political checks, health examination, and undertake separately
the recruitment in general higher education.

Higher education institutions may decide to adjust disciplines and specialties; undertake scientific research,
technical development and social services; establish their internal structure; and assign staff members in teaching,
research and administrative organs on their own, in accordance with the concerned stipulations, social needs and
their actual conditions. The institutions examine and approve the professional titles of technical personnel, and have
the decisive right in: employment matters; adjusting the internal structure of salary; management of funds; facilities;
governmental finance and donations; and conduct international exchanges and co-operation programmes. The
decision-making organs in the higher education institutions determine the internal organizational structure,
personnel assignments, medium- and long-term development plans, and the basic management system. The
president of the institution is responsible for the daily administrative work such as: teaching, scientific research,
political and values education, and general affairs. The academic committee is in charge of the assessment and
adjustment of disciplines and specialties, as well as examining teaching and research plans.

The assessment of higher education institutions is composed of three forms: self-assessment, assessment by the
administrative organs and social assessment. The assessment by the administrative organs includes: qualified
assessment, comprehensive assessment of levels of education provided, and assessment for selection of the best.

The purpose is mainly to comprehensive assess levels of education provided with a focus on the qualifications and
assessment for selection of the best. The main contents of the comprehensive assessment are: the orientation and
management levels of higher education institutions; overall qualities of students in terms of moral, intellectual and
physical characteristics; scientific and technological endeavours and social service; basic conditions under which
education is provided.

In order to guarantee the assessment work of higher education institutions, the State Education Commission
formulated and disseminated the Primary Standards and Contents for Assessment of Higher Education Institutions.
It stipulates that all the institutions must satisfy the requirement of the Provisional Regulation on Establishment of
Higher Education Institutions for Adults and Complementary Regulation on Establishment of Higher Education
Institutions. At the same time, it establishes the basic conditions for education provision, institution management,
teaching quality and efficiency of operation, as well as the concrete contents and requirement for correspondence
programmes and evening programmes operated by higher education institutions. It also stipulates assessment
methods and standards.

In 1980, the People’s Congress approved and promulgated the Regulations on Degrees of the People’s Republic of
China. The Regulation stipulates that degrees in China are composed of bachelor’s, master’s and doctoral degrees.
Students in higher education institutions are awarded a bachelor’s degree when they have attained excellent
academic achievements in normal courses and the following: (a) mastery of basic theory, specific knowledge and
skills in the specified subjects; (b) primary ability in undertaking scientific research and technical work.

Graduates in higher education institutions and research institutes, or personnel with the equivalent academic level,
are awarded a master’s degree when they pass the examinations and defend a thesis, and are up to the following
standards: (a) solid mastery of the basic theory and systematic knowledge in certain subjects; (b) primary ability in undertaking scientific research and technical work.

Graduates in higher education institutions and research institutes, or the students with the equivalent academic level,
are awarded a doctoral degree when they pass all the specified examinations and defend a thesis, and are up to the
following standards: (a) solid mastery of the basic theory and further systematic knowledge in certain subjects; (b)
the ability to independently undertake scientific research; (c) initiative results in sciences and specific technology.

In order to strengthen the management of higher education academic diplomas and keep up the authenticity of the
diploma system, as well as the quality and structure of higher education, the State Education Commission
promulgated the Provisional Regulation on Management of Diplomas of General Higher Education in 1993.
According to this Regulation, when students with a formal record of schooling accomplish all the courses, pass the examinations and are up to the standard in moral and physical education, they can graduate with an academic diploma. The Regulation stipulates clearly the conditions and management of the awarding of academic diplomas. Students with a formal record of schooling having completed all the courses and not passing examinations in one or more courses and failing either of the complementary examinations, but who are up to the standard in moral and physical education, will receive a certificate of accomplishment. Students with formal record of schooling having studied in a school for more than a year and leaving school without finishing all the courses of programme, will also receive a certificate. The Regulation also stipulates the awarding of certificates for other types of students.

In order to improve the higher education system and encourage self-improvement through self-study, the State Council promulgated the Provisional Regulation on Self-study Examinations in Higher Education, which stipulates that learners could receive academic diplomas when they:

a) accomplish all the courses set by the teaching programme and pass the examinations;

b) accomplish the graduation thesis or other task in teaching;

c) are up to standard in morality.

In the past fifteen years, more than 20 million students participated in self-study examination programmes; in 1995, 7.45 million students sat the examinations and 1.2 million graduated.

**India**

**Principles and general objectives of education**

India’s commitment to the spread of knowledge and freedom of thought among all citizens is reflected in its Constitution, promulgated in January 1950. The Directive Principle contained in Article 45 ensures that “the State shall endeavour to provide within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years.” Article 29 (1) ensures that any citizen having a distinct language, script or culture will have the right to conserve it. Article 350-A stipulates that “it shall be the endeavour of every state and of every local authority within the state to provide adequate facilities for instruction in the mother tongue at the primary stage of education to children belonging to linguistic minority groups.” Moreover, special care of the economic and educational interests of the underprivileged sections—in particular the Scheduled Castes and Scheduled Tribes—is a declared obligation of the State under Article 46.

Article 29(2) ensures that no citizen shall be denied admission into any educational institution maintained by the State or the receipt of aid from State funds on grounds of religion, race, caste, or language.

The expression “the State” includes the Government and Parliament of India, the government and the legislature of each of the states and all local or other authorities within the territory of India or under the control of the Government of India.

**Current educational priorities and concerns**

Educational policy and progress have been reviewed in the light of the goals of national development and priorities set from time to time. In the National Policy on Education (NPE) approved in 1968, an emphasis on quality improvement, a planned and more equitable expansion of educational facilities and the need to focus on the education of girls was stressed.

The 1986 NPE, as updated in 1992, and the 1992 Plan of Action (POA) provide for several key strategies. Among the distinguishing features and recommendations of this policy, the following should be mentioned:

- increasing reliance on social mobilization to promote basic education;
• emphasis on pre-primary education;
• decentralization, with the district as the unit of planning for implementation of elementary education and adult literacy;
• formulation of strategies based on micro-planning at the grassroots level to ensure children’s retention in school;
• introduction of Minimum Levels of Learning (MLL) in schools to improve learner’s achievement. Micro-planning will provide the framework for universal access and universal participation, while MLL would be the strategy for universal achievement;
• integration of adult literacy and non-formal education programmes with vital national concerns such as the small family norm, health care, environment and nutrition;
• provision of essential facilities in schools;
• adoption of a child-centred, activity-based approach;
• establishment of District Institutes of Education and Training (DIET) for the pre-service and in-service training of teachers for elementary schools and for personnel employed in non-formal and adult education programmes.

Since the 1986 National Policy on Education, the most significant development has been the acceptance of a common structure of education and the introduction by most states of the 10+2 system, i.e. a ten-year programme divided into three cycles—primary, upper primary (or middle school) and secondary education—followed by two years of higher secondary education.

As far as elementary education (primary and upper primary) is concerned, ensuring accessibility of educational opportunities has been the principal governmental strategy. Special efforts were aimed at educationally disadvantaged groups—particularly Scheduled Castes (SCs) and Scheduled Tribes (STs), 17% and 8% of the population, respectively. This has included monetary and other incentives, and recruitment of more teachers from disadvantaged communities, as well as flexible school timings. As an incentive to enrollment, attendance and retention, in addition to improving the nutrition of children, a nationwide mid-day meal programme was launched during 1995/96. More than 33.5 million of children benefited from the scheme.

In addition, the education system seeks to give due recognition and importance to the social organization, traditions, customs and value systems of the various communities—in particular SCs and STs. This is supported by the development of materials and curricula in their languages, the creation of residential schools and the participation of young and educated members of the community in the educational process.

Various initiatives have been taken to reduce the academic burden on students while improving the quality of education. Not only is the curriculum development being decentralized, but also teachers are being increasingly involved in the development of textbooks, child-centered and activity-based methods of teaching in schools, and examination strategies are being formulated to assess the ability to understand rather than the ability to memorize. The examination system is under permanent review through the introduction of continuous and comprehensive evaluation.

In 1996 the Government renewed its commitment to the universalization of elementary education (UEE) and to raise education allocation from the level of 3.23% of Gross Domestic Product (GDP) up to 6% by the turn of the century. The opening of residential schools for poor children in each district and a Teacher Housing Scheme are the thrust areas of the new policy.

The District Primary Education Programme (DPEP) is the major initiative undertaken to effect improvement in the quality and UEE. The programme is distinguished by its holistic approach and the principle of contextuality in planning. This, in effect, implies that education is planned and organized in the specific context of the area concerned—a shift from macro- to micro-planning with the district as the unit of planning. The programme lays great emphasis on people’s participation and management, has a marked gender focus and seeks to enhance school effectiveness by increasing infrastructural facilities, developing instructional materials and teacher training.

The revised NPE (1992) has proposed reforms and a restructuring at the secondary education stage, aimed at an improvement of curriculum content and systemic efficiency. The two main areas of focus are: vocationalization and greater use of educational technology. Vocationalization in the last two years of school education was first
introduced in 1988 and is anticipated to serve individual employability, create a bridge between the demand for and supply of skilled manpower and provide an alternative to higher education for those not inclined to academics. In 1996, about 10% of students followed vocational courses at the higher secondary stage.

The National Council of Educational Research and Training (NCERT) has developed eighty-two competency-based curricula for six identifiable subject areas of vocational education. General education and foundation courses, as well as language development, will form 30% of the teaching/learning requirement, in addition to vocational theory and on-the-job training, which will account for 70% of course time.

The last decade has witnessed a number of new initiatives to improve the access to and participation of children in elementary education as well as for improving the quality of education provided in primary schools. The proposed National Campaign for Education for All—Sarva Shiksha Abhiyan—will be implemented by Government of India in partnership with the state governments with a long-term perspective and through a district-level decentralized management framework involving local bodies. It is envisaged that the Campaign will move towards achieving the following four goals:

- providing access to all children in the age group 6-14 years through formal primary schools or through other equivalent alternative programmes by the year 2003;
- completion of five years of primary education by all children by 2007;
- completion of eight years of elementary education by all children by 2010;
- provision of elementary education of satisfactory quality for all by 2010.

The programme will be implemented in a manner that will provide adequate opportunities for NGOs and the private sector to contribute towards the achievement of these goals and lead towards a community-owned initiative for universalizing elementary education. Keeping in view past experiences, efforts under the Sarva Shiksha Abhiyan will be underscored by effective decentralization, sustainable financing, cost-effective strategies for universalization, relevant curriculum, community-owned planning and implementation, and focus on girls and disadvantaged groups (Department of Education, 1999).

**Structure and organization of the education system**

**Primary education** (or the elementary stage) caters to children aged 6-14; it is free and compulsory. In all the States and Union Territories (S/UTs), elementary education is composed of two cycles: primary education and upper primary (or middle school). Elementary education lasts eight years in twenty S/UTs and seven years in twelve S/UTs. In the case of eight-year programmes, the pattern followed by eighteen S/UTs is five years of primary education and three years of upper primary; in the other two S/UTs, elementary education consists of two four-year cycles. In the case of seven-year programmes, in eleven S/UTs the pattern is 4+3, while in one state primary education lasts five years followed by two years of upper primary.

**Secondary education** is divided into secondary and higher secondary (academic or vocational). In twenty S/UTs, secondary education lasts four years, divided into two two-year cycles (Grades IX-X and Grades XI-XII). In twelve S/UTs, secondary education lasts five years and is divided into two cycles—Grades VIII-X and Grades XI-XII. In all the States and Union Territories higher secondary education comprises Grades XI and XII (Department of Education, 1999).

General **higher education** is provided in universities and colleges. Undergraduate courses leading to a first degree generally last three years. Post-degree courses range from two to three years.

**The financing of education**

“Education is financed by the central government, state governments, local authorities, and a variety of private sources. The education budgets of the central government as well as the state governments are divided into categories: developmental expenditure (Plan) and maintenance (Non-Plan). Over the years, there has been a
remarkable increase in expenditure on education, both as percentage of the gross national product and as a percentage of government expenditure.” (Bordia, 1995, p. 436).

The total expenditure on education increased by 60.5% during 1990-95, of which the central government’s share was about 9%. As a percentage of GNP, the increase during the period has been marginal, but a substantial increase of up to 6% of GNP is envisaged by the turn of this century.

The bulk of the financial outlay on education is allocated to elementary and adult education. The total expenditure on elementary education rose from 79,555 million rupees (Rs) in 1990/91 to Rs129,834 million in 1994/95. The total expenditure on adult education rose from Rs2,731 million in 1990/91 to Rs3,585 million in 1994/95. Expenditure on elementary and adult education is mainly incurred by the central government, state governments and local bodies. Voluntary agencies, which are participating in providing basic education to children and youth, are mostly being financed from central and state funds.

The government provides free elementary education and provides incentives to children—particularly those from disadvantaged groups. The mid-day meal programme, which has been implemented on a large scale from August 1995, is one of the most important incentives being provided. Literacy programmes are also free.

**The educational process**

**Pre-primary education**

The 1986 National Policy on Education defined the objective of early childhood care and education (ECCE) as being the total development of children in the age group 0-6 years, and added that special attention must be paid to children from underprivileged groups and those who were first generation learners. In a country like India, where inequalities are so extreme that thousands of children require—in addition to educational facilities and exposure to a learning environment—support in terms of health care and nutritional inputs, ECCE has evolved as a programme which seeks to provide such a holistic service. The ECCE programme is designed to further the three objectives of: (a) preparing children for primary school; (b) providing a support service for girls in Universal Primary Education (UPE); and (c) acting as a support service for working women of low-income groups.

The content of ECCE programmes extends beyond health care and nutritional inputs to encompass structured and unstructured play activities, and to provide materials and learning experiences to promote the social, emotional, mental, physical and aesthetic development of children. There is also an effort to establish effective linkages between ECCE and other development programmes to ensure a convergence of services. These include the Integrated Child Development Services (ICDS), *balwadis/anganwadis* or day-care centres, schemes which are run by governmental and non-governmental organizations, and pre-primary schools managed by local organizations and state governments.

It can be noted that the spread of ECCE facilities—particularly in terms of ICDS centres—has been phenomenal in recent years, covering all the 5,320 community development blocks in the country. However, the actual outreach and coverage in respect of early childhood education component has been rather poor. This is evident from the fact that the Gross Enrollment Ratio (GER) of 10.3% in 1990 has improved only to 16.9% in 1997/98. In addition, the coverage is very uneven across different part of the country (Department of Education, 1999).

**Primary education**

The states are free to develop their own curricula and instructional materials within the framework developed at the national level by the NCERT. To cope with this, a strategy has been developed to impart Minimum Levels of Learning (MLL), i.e. the development of competency-based teaching and learning to suit local situations. This approach integrates various components of curriculum, classroom transaction, evaluation and teacher orientation.

At the primary stage, the focus of the curriculum is on: development of basic skills of literacy and numeracy; study of the environment in terms of physical and social phenomena; participation in activities which would develop productive skills, creative expression and habits of healthy living (Department of Education, 1999).
The elementary education system in India is the second largest in the world, with about 82% of the children aged 6-14 enrolled. The emphasis, however, is not on enrollment alone, and equal attention is paid to retention and achievement. An estimated 95% of the rural population now has access to primary schooling facilities within a walking distance of one kilometre; 84% of the population is served by middle or upper primary schools within a distance of three kilometres. Gross enrollment ratios have remained relatively static during the 1990s. This is particularly true of the figures for boys at the primary level (age group 6-11 years). Corresponding figures for girls show an increase of about 6%. On the whole, as against a GER of 90.3% (98.5% for boys and 81.5% for girls) in primary education, the net enrollment ratio (NER) is only 71.1%—77.7% for boys and 64% for girls.

The number of children who regularly attend school and complete the first cycle of education still needs to be improved substantially. For a number of reasons, many children do not complete primary education. There are wide disparities among different states. For example, while almost all children enrolled in the initial grades of primary education complete at least four or five years of schooling in the states of Kerala, Goa and Mizoram, the figures concerning school drop-outs in certain other states continue to be very high. Thus, an important goal is the reduction of drop-out rates in Grades I-V and Grades I-VIII from 36.3% and 56.5% in 1994 to 20% and 40%, respectively. These rates were set as targets to be achieved during the Ninth Five-year Plan period (1997-2002). The repetition rate is not very high—around 5-8% on the average. This is possibly due to the policy of automatic promotion in initial grades followed in most of the states. Low repetition rates may, however, be leading to lack of attention to learner achievement and in turn affecting the learning levels of the children as well as their motivation to attend regularly (Department of Education, 1999).

Secondary education

There has been a steady expansion of secondary education. Between 1986 and 1993, the enrollment growth for secondary and higher secondary was 32.45% and 37.72%, respectively. Girls’ enrollment increased greatly, registering an increase of about 51% at the secondary level and 54% at the higher secondary level. In addition to expansion, secondary education is being strengthened through various schemes for improving education in: science, vocational areas and work experience, population education, culture, values, computer literacy, education technology, yoga, physical education and sports. A number of programmes have also been formulated for promoting enrollment of girls, SCs, STs, and disabled children.

The number of secondary and higher secondary schools increased from 7,416 in 1950/51 to 102,183 in 1996/97. The participation rate of girls at the secondary/higher secondary stage increased from 13.3% to 36.3% during the same period. The teacher-student ratio, which was 1:21 in 1950/51, increased to 1:33 in 1996/97.

Higher education

The higher education system has grown steadily since independence. From twenty-five universities in 1947, this number increased to 216 by 1994/95. This figure includes thirteen central universities, 164 state universities and thirty-six university-level institutions. The number of colleges rose from 700 to 8,613. Enrollment figures for the same period show an increase from 0.2 million to 6.11 million students, with approximately 300,000 teachers. Although there has been a spectacular increase in student enrollment, the coverage of the relevant age group (18-23 years) is relatively low—about 6%.

In 1994/95, about two million female students were enrolled in higher education programmes with their participation at the post-graduate level accounting for 35.6% of the total enrollment. The preference continues to rest with the arts and humanities courses, which represent 40.4% of enrollment. Commerce courses attract an estimated 21.9% of the enrollment; science courses, 19.6%; engineering and technology, 4.9%; law, 5.3%; and other faculties, 5.6%.

Of the 8,613 colleges, 974 provide education in professional disciplines like engineering (352), agriculture (170) and medicine (638)—including ayurvedic, homeopathic, pharmacy, etc. Others provide education in arts, physical sciences, humanities, social sciences, etc.
“All central universities and a few others are primarily residential. About 83 percent of enrollment in higher education is in affiliated colleges. Technical and professional courses range from three to five years for a first-degree course and from two to three years for a post-degree course. Admission requirements in general education courses are not very demanding, but admission to engineering and medical courses is very competitive. Universities also provide facilities for research and many of them, particularly the agricultural universities, have developed strong extension programmes.” (Bordia, 1995, p. 433).

The University Grants Commission (UGC) focused its activities on restructuring undergraduate courses to make them more relevant and to provide a work experience component for them. Efforts are also being made to develop a curriculum for women’s studies at the undergraduate and post-graduate levels. Financial support is offered to universities seeking to conduct research in women’s studies. The UGC is the body responsible for funding and establishing standards for higher education. Lately, it has been granting greater autonomy to universities. In this context, more than 100 universities have become autonomous institutions.

There has been a phenomenal growth in the number of technical education institutions during the last four decades. The number of recognized technical education institutions at the first degree level was thirty-eight in 1947/48, whereas the number of approved degree-level institutions by 1995/96 has increased to 414 and the number of polytechnics to 1,026. Similar expansions have taken place in other sectors of technical education.

At present, six Indian Institutes of Technology (IIT) have been set up—at Bombay, Delhi, Kanpur, Kharagpur, Madras and Guwahati—by the Government of India under the Institutes of Technology Act (1961). They are institutions of national importance, with the objective to advance knowledge through quality education and research, in both pure and applied sciences, and in engineering and technology. These institutes offer engineering courses at graduate and post-graduate levels and also provide adequate facilities for advanced research.

Four Indian Institutes of Management (IIM) were set up by the Government of India at Ahmedabad, Calcutta, Bangalore and Lucknow with the objectives of providing education, training, research and consultancy in management. The IIMs offer post-graduate programmes, fellowship programmes, management development programmes, post-graduate diplomas in computer-aided management and organization-based programmes. The Government of India has recently approved the establishment of two more IIMs, one at Indore (Madhya Pradesh) and the other at Calicut (Kerala).

Japan

Principles and general objectives of education

The basic principles for education in Japan are defined in the Constitution, enacted in 1946, and the Fundamental Law of Education (1947). The Constitution provides for the basic right and duty of the people to receive education as follows: “All people shall have the right to receive an equal education corresponding to their abilities, as provided for by law. The people shall be obligated to have all boys and girls under their protection receive general education as provided for by law. Such compulsory education shall be free.” (Article 26).

The Fundamental Law of Education sets forth the basic national aims and principles of education in accordance with the spirit of the Constitution. The Law defines the central aim of education as “the full development of personality, striving for the rearing of people, sound in mind and body, who shall love truth and justice, esteem the value of the individual, respect labour and have a deep sense of responsibility, and be imbued with an independent spirit, as builders of a peaceful state and society.” To achieve this aim, the Law sets forth national principles of education such as: equal opportunity; nine-year compulsory education; co-education; and prohibition of partisan political education.

Current educational priorities and concerns
The education system in Japan is undergoing overall reorganization based on ideas of educational reform, with the aim of changing the mode of thinking which places too much value on formal schooling, and securing stronger links among different educational functions, including formal education, so as to promote lifelong learning.

From 1984 to 1987 a National Council of Educational Reform engaged in wide-ranging deliberations regarding education and other related fields. It submitted to the Prime Minister four successive reports, in which diverse recommendations regarding educational reform strategies were put forward. The Council set forth three basic viewpoints for educational reform: (i) emphasis on individuality; (ii) transition to a lifelong learning society; and (iii) coping with various changes including internationalization in various sectors of society and the spread of modern information media.

The emphasis on individuality encompasses the principles of dignity of individuals, respect for personality, freedom and self-discipline, and individual responsibility. In its reports, the Council defined this principle as the most important one to be considered in all the aspects of the educational reform. This principle presupposes the elimination of the existing negative characteristics of education in Japan: uniformity, rigidity and closedness. It was necessary that all aspects of the education system, including content and methods of teaching, educational structures and government policies in education, be reviewed in the light of this basic principle. The importance of fostering children creativity, thinking ability and powers of expression, avoiding emphasis on memorization, was also stressed.

The transition to a lifelong learning society is intended to correct a mode of thinking which places too much value on formal schooling, and to create a new education system whereby people can participate in learning by freely choosing relevant opportunities at any time throughout their lives, and whereby the results of their learning will be duly assessed. The creation of such a new education system is intended to meet the diverse learning demands brought about by the increase in leisure hours, the improvement of the average level of formal schooling completed by individuals, and the aging of the population. In addition, it is designed to respond to the necessity of acquiring new knowledge and skills relevant to the various social changes, including the progress of advanced science and technology and the greater predominance of software industries. It is also important that the educational function of the family and the community be vitalized and that mutual links among the family, the school and the community be ensured.

Coping with various changes implies that education must actively and flexibly interact with the changing environment. The most important tasks with which education is confronted are coping with internationalization and with an information-oriented society.

The National Council of Educational Reform formulated many proposals which require further deliberations for their implementation. In this respect, some other relevant advisory bodies to the Minister have further deliberated specific issues for implementing reforms, and submitted to the Minister concrete recommendations.

The Ministry of Education, Science, Sports and Culture has been implementing various reforms on the basis of recommendations put forward by the Central Council of Education. In April 1995, the Ministry reorganized this Council and asked it to consider how to develop Japan’s education with a view to the 21st century. The Council is now deliberating the following three major subjects: (i) Japan’s education system in the future and the respective roles of the school, the family, the community and the forms of their collaboration; (ii) education adapted to the abilities and aptitudes of individuals and the improvement of articulation between the different school levels; and (iii) education relevant to various social changes such as internationalization, the spread of modern information media, and the advancement of science and technology. In July 1996, the Council published its first report.

The Lifelong Learning Council submitted in 1992 the report Strategies for the promotion of lifelong learning which are relevant to various future trends in society, and in April 1996 it published another report (Strategies for expanding lifelong learning opportunities at the community level). In the 1996 report, the Council recommended various strategies required for the expansion of lifelong learning opportunities at the community level, with regard to: (i) universities and other higher education institutions; (ii) elementary, lower secondary and upper secondary schools; (iii) facilities for non-formal education, culture and sports; and (iv) research and in-service training institutes.
The University Council has published a report on the following issues: the expansion and enrichment of graduate school programmes; the incorporation of flexibility into the graduate school system; the improvement of university programmes, as well as of the system of academic degrees; the systematic development, both quantitative and qualitative, of higher education; the vitalization of university management; and the improvement of university entrance examinations. The Council is now deliberating various issues regarding university reform, with a view to enhancing and vitalizing educational and research activities of individual universities.

Reforms regarding the education system are now shifting from the planning stage to the stage of gradual implementation. In this transition, emphasis has been placed on spontaneous choice of alternatives, as well as innovative and creative efforts, by each locality and by each educational institution. Consequently, the spontaneous efforts and independent ideas of many related people in each locality and at each educational institution are required to a greater extent than ever before.

**Structure and organization of the education system**

Kindergartens cater to children between the ages of 3 and 6. Pre-school education is not compulsory and is mainly provided by private institutions (79.6% of children in 1995). About 63% of 5-year-olds were enrolled in kindergartens in 1995.

Primary education is the first step of compulsory schooling and all children between the ages of 6 and 12 are required to attend elementary school. Almost all children (98.6%) are enrolled in public schools supported by local governments.

Lower secondary education is the final step of compulsory schooling and caters to pupils between 12 and 15 years. Students who have completed the three-year lower secondary course are entitled to apply to upper secondary schools or colleges of technology.

There are three types of upper secondary school courses: full-time, part-time and correspondence courses. Full-time courses last three years, while part-time and correspondence courses last three years or more. Part-time courses are mainly offered in the evenings. In terms of the content of teaching, upper secondary school courses may be classified broadly into three categories: general, specialized and integrated. General courses offer general education, with emphasis on academic subjects, while specialized courses are designed to provide vocational, technical or other education for those students who have chosen a particular vocational area as their future career. These courses are further classified into several categories, such as agriculture, industry, business, fishery, home economics, nursing, science and mathematics, etc. Integrated courses comprehensively offer general and specialized education.

Higher education institutions in Japan include universities (Daigaku), junior colleges (Tanki-daigaku) and colleges of technology (Koto-senmongakko). In addition, special training schools and miscellaneous schools offering advanced courses may be counted as institutions of higher education.

While universities and junior colleges require for admission the completion of upper secondary schooling, “colleges of technology are a unique form of higher education institution providing mainly technology and engineering education for those having completed lower-secondary school” (Kanaya, 1995, p. 484). A college of technology usually offers several courses in engineering and mercantile marine studies. The duration of the course is five years (five and a half years for mercantile marine courses). There are a variety of main courses, including those in mechanical engineering, electric engineering, electronic control, information technology, material/bio-engineering, civil engineering, mercantile marine, and management information.

Special training schools are a new type of educational institution created in 1976. They offer systematic educational activities, aiming to help students develop the abilities required for vocational and daily life, and also to help improve their cultural standards. These schools are required to maintain an enrollment of at least forty students and to offer instruction for 800 hours or more per year for each course. The courses may be classified into three categories: upper secondary courses admitting lower secondary school graduates; advanced courses admitting upper secondary school graduates; and other courses. Those special training schools offering upper secondary courses may
be called “upper secondary special training schools”, while those offering advanced courses are referred to as “special training colleges.”

Junior colleges offer courses lasting two or three years, mainly in the fields of humanities, home sciences, education and social sciences.

A university has one or more undergraduate faculties or other basic units for educational activities, which offer courses usually lasting four years (six years for medical, dental and veterinary courses) leading to a bachelor’s degree. A university may set up a graduate school aiming to give graduate students opportunities to pursue in-depth study and research concerning academic theories and their application. Graduate schools require the completion of an undergraduate course or its equivalent for admission. A graduate school offers master’s degree courses (usually two years of study) and doctoral degree courses (the standard duration of course is five years, except for medical, dental or veterinary courses, which last four years).

The school year begins on 1 April and ends on 31 March of the following year, corresponding with the fiscal year of the country. At the elementary and lower secondary levels, the school year is usually divided into three terms: April-July, September-December and January-March. While the majority of upper secondary schools adopt a three-term school year, some of them adopt a semester system (usually, the first semester ranges from April to September, and the second from October to March). Higher education institutions usually adopt a two-semester academic year. According to the Course of study for kindergartens, the number of working weeks per year should be not less than thirty-nine, except under special circumstances.

At all school levels, vacation is granted in summer (from the end of July through August), in winter (from the end of December to early January) and in spring (at the end of the school year). The beginning and ending dates of these vacation periods are determined by the respective boards of education and schools. In general, educational institutions are closed on Sundays and on national holidays.

The financing of education

The responsibility for financing public education is shared by the national, prefectural and municipal governments. Each government provides support for its own educational activities with funds derived from its own taxes and other income. None of the national, prefectural or municipal taxes are earmarked for specific governmental services. The decision as to the proportion of tax revenue to be allotted to educational services is at the discretion of each government.

Educational expenditure of the national government may be classified into two categories: expenditure for national educational establishments (universities and others) and services; and subsidies earmarked for education which are allocated to prefectures, municipalities, private educational establishments and other bodies.

In addition, the national government provides local allocation tax grants to prefectural and municipal governments. These grants are aimed at ensuring that every local government secures a certain level of income and public services. The sources of these grants are defined by law as: a certain percentage (32%) of total national revenue from the income tax, corporation tax and liquor tax; a certain percentage (24%) of consumption tax income; and a certain percentage (25%) of cigarette tax income. While these grants are not earmarked for any specific services, a certain level of local government expenditure for education is made possible under these grants.

Educational expenditure of prefectural governments include: expenditure for prefectural educational establishments and services; salaries and allowances for teachers in municipal elementary, lower secondary and part-time upper secondary schools; and subsidies to municipalities for educational purposes. Educational expenditure of municipal governments include: expenditure for operating municipal elementary and lower secondary schools (other than teachers’ salaries); and expenditure for operating the other municipal educational establishments.

In the fiscal year (FY) 1993, ending in March 1994, total public expenditure for education accounted for 6.4% of national income and 16.6% of the net total of national and local government expenditure. The proportion of educational expenditure to total expenditure of the national government was 8.8%, and the average proportion of
local government expenditure devoted to education to the total expenditure was 21.1%. The national government share of public expenditure for education was approximately one-half.

No tuition fees are charged for instruction in public elementary and lower secondary schools which provide compulsory education. Tuition fees are charged to students in public upper secondary schools and in public higher education institutions. Tuition fees collected from students are incorporated into revenue receipts of the government operating the institution, and are not earmarked for educational purposes.

While tuition fees charged in national institutions are uniformly determined by the Ministry of Education, Science, Sports and Culture, those charged in prefectural and municipal schools are determined by individual local authorities.

Student aid programmes are offered by a number of organizations including the Japan Scholarship Foundation, supported by the national government, prefectural and municipal governments, and non-profit corporations.

**The educational process**

The Ministry of Education, Science, Sports and Culture lays down the minimum number of school days per year for kindergartens, and the subjects to be offered in elementary, lower secondary and upper secondary schools, as well as the standard number of yearly school hours for each subject. The Ministry also specifies the objectives and standard content of each subject or each area of school activity in the course of study, which contains the national curriculum guidelines for each of the four school levels: kindergarten, elementary school, lower and upper secondary school.

Each school organizes its own curriculum in accordance with the provisions of the relevant statutes and the course of study, taking into account the actual circumstances of the locality in which it operates, as well as the characteristics of children enrolled and the stage of their mental and physical development.

In March 1989, the Ministry started the process of revision of the national course of study for each of the four school levels. The basic objective of this revision was “to contribute to developing citizens who are rich in heart and are capable of coping with the changes in society.”

**Pre-primary education**

Kindergartens are non-compulsory schools intended to help infants develop their minds and bodies by providing them with an appropriate educative environment. The *Course of study for kindergartens* (put into effect in 1990) sets forth specific objectives to be achieved by children by the end of a kindergarten course with regard to their emotions, willingness and attitudes, as well as the specific content to be taught to achieve each objective. These objectives and corresponding content are set forth in each of the five aspects of children’s development: health, human relations, environment, language, and expression. All objectives and related content are to be achieved through children’s play and other activities.

It is also specified that the standard number of daily school hours should be four and that the number of school weeks per year should be not less than thirty-nine.

**Primary education**

The elementary school is intended to provide children with elementary general education suited to the relevant stages of their mental and physical development.

In September 1992, a five-day school week began to be introduced once every month, and in April 1996 the five-day week began to be implemented twice every month. The five-day school week is intended to contribute to an overall review of the educational functions of the school, the home and the community. It is also aimed at bringing about the sound character formation of children. It is envisaged that the five-day school week will take root successfully throughout the country.
The enrollment ratio for compulsory schools in Japan has always been nearly 100%, and grade-to-grade promotion is practically automatic. In 1995, the average pupil-teacher ratio was 19.4:1.

Secondary education

The lower secondary school aims to provide pupils aged 12-15 with general secondary education suited to the level of their mental and physical development, based on the education given in the elementary school. In 1995, the total number of lower secondary schools was 11,274, with 4,570,390 students enrolled and 271,020 teachers. The average pupil-teacher ratio was 16.9:1. In the same year, 96.7% of students completing lower secondary courses entered upper secondary schools and colleges of technology.

Upper secondary schools may offer a number of elective subjects at their discretion, so that the curriculum in each school may be adapted to the aim of the courses offered in the school and to the differing abilities, aptitudes and future prospects of individuals and so that students may choose appropriate subjects suited to their own abilities, aptitudes and future prospects. In 1995, 74.2% of upper secondary school students were enrolled in general academic courses, and the rest in vocational and other specialized courses.

The revised course of study for upper secondary schools became effective progressively from 1994 (specifically, it took effect in 1994 for the first year of the upper secondary school, in 1995 for the second year, and 1996 for the third year). The course of study specifies the subjects both in general education and in specialized education, as well as the objectives and the standard content of teaching in each subject. In addition, it lays down the standard number of credits to be acquired for most of the general education subjects.

In 1995, the total number of upper secondary schools was 5,501, with 4,724,945 students enrolled and 281,117 teachers. The average student-teacher ratio was 16.9:1. In the same year, 45.2% of the age group enrolled in upper secondary schools entered universities and junior colleges.

Higher education

Higher education in Japan is mainly provided by universities, junior colleges and colleges of technology.

Universities are higher education institutions which, as centres of learning, conduct teaching and in-depth research in specialized academic disciplines and provide students with broad knowledge. Junior colleges aim to conduct teaching and in-depth research in specialized subjects, and to develop in students abilities required for vocational or practical life. Colleges of technology aim to conduct in-depth teaching in specialized subjects, and to develop in students such abilities as are required for vocational life.

Admission to universities and junior colleges is granted on a competitive basis to those who have completed upper secondary courses. Entrants are selected by means of scholastic achievement tests (including the nationwide examination administered by the National Centre for University Entrance Examinations through national, local public and private universities) and other tests assessing students' abilities and aptitudes. Assessments submitted by upper secondary schools are also taken into account. Recently, however, the number of universities admitting a certain number of students merely on the basis of the recommendation from upper secondary school principals has been increasing.

In the spring of 1995, approximately 1,133,000 students applied for admission to universities or junior colleges, and about 801,000 (66.2%) were successfully admitted. About 203,000 (25.3%) of these entrants graduated from upper secondary schools one or more years before. In the same year, the number of entrants to universities and junior colleges accounted for 45.2% of the age group.

With regard to universities (undergraduate courses), in 1995 more than one-half of all students were enrolled in humanities and social science courses, while nearly one-third were in scientific courses (natural science, engineering, agriculture, medicine, dentistry, etc.). The distribution of students by major fields of study varies among national, local public and private institutions. In national universities, enrollment in humanities and social
science courses accounts for only 24% of total enrollment, while the proportion of students enrolled in these courses reaches 58% in local public universities, and about 65% in private universities.

Students in universities, junior colleges and colleges of technology are required to meet certain credit requirements for the completion of a specific course. The optimum standard requirements for credits are specified in the respective ordinances of the MONBUSHO providing for optimum national standards for the structure, teacher staffing, content of education, physical facilities, etc., for the different types of higher education institutions. Content and methods of teaching are at the discretion of individual institutions of higher education.

The Ministry has implemented various institutional reforms, so that universities may cope with the needs of adults for lifelong learning. These reforms include: (i) the introduction of a system in which non-degree students can learn a single subject or a few subjects at university and earn regular university credits for these subjects; (ii) the creation of a system whereby universities are authorized to award part of their credits for the results of student learning at a special training college; (iii) the expansion of university courses open both in the daytime and in the evening, in order that universities may adapt their programmes to the varied life patterns of working adults; and (iv) the introduction of a new system of student placing, which will facilitate the entrance or transfer of students to the second year or above of a university course.

In 1989, the Ministry introduced the following reforms in the graduate school system: (i) the authorization of graduate school evening courses; (ii) the revision of the National Standards for the Establishment of Universities, so as to authorize the establishment of universities providing a graduate school only (i.e. “graduate universities”); (iii) the introduction of flexible provisions which will enable students to obtain a master’s degree in one year after completion of an undergraduate course, and which will enable students to earn a doctoral degree in three years after completion of an undergraduate course; and (iv) the introduction of flexible provisions regarding qualifications of graduate school entrants, so that university students may be admitted to a graduate school after completing the third year of an undergraduate course.

In 1991, the Ministry introduced a thorough reform of the academic degree system. Under this reform, some consolidation was made of, and more flexibility was given to, the categories of degrees. It was made possible for those who have not graduated from a university to obtain a bachelor’s degree, under certain requirements and subject to the screening by the National Institution for Academic Degrees.

In 1995, the total number of universities was 565, with 2,546,649 students enrolled and 137,464 teachers. The total number of junior colleges was 596, with 498,516 students enrolled and 20,702 teachers. The total number of colleges of technology was 62, with 56,234 students enrolled and 4,306 teachers. In addition, there were 3,476 special training schools (813,347 students enrolled and 36,433 teachers) and 2,821 miscellaneous schools (321,105 students enrolled and 16,304 teachers).

In April 1995, approximately 335,000 students followed advanced courses offered by special training schools. About 249,000 of these students graduated from upper secondary schools in March of the same year. This number accounted for 15.7% of all graduates from upper secondary schools, which was a little more than that of entrants to junior colleges.

**Philippines**

### Principles and general objectives of education

In the Philippines the education system aims to:

- Provide a broad general education that will assist each individual in society to attain his/her potential as a human being, and enhance the range and quality of the individual and the group;
- Help the individual participate in the basic functions of society and acquire the essential educational foundation for his/her development into a productive and versatile citizen;
- Train the nation’s manpower in the middle-level skills required for national development;
• Develop the high-level professions that will provide leadership for the nation, advance knowledge through research, and apply new knowledge for improving the quality of human life;
• Respond effectively to changing needs and conditions through a system of educational planning and evaluation.

Current educational priorities and concerns

The growing awareness of the benefits of education, the constitutional provision (a new constitution was adopted in 1987) for free and compulsory elementary education, the demand for education relevance and responsiveness to changing societal needs and the alarming rate of increase in the country’s population have contributed to the problem of providing education for all, a problem which becomes more serious each year. The Department of Education, Culture and Sports (DECS) has attempted to implement educational reforms, programmes and projects to address the key issues of access and quality of basic education, relevance and efficiency of the education system. However, many problems are besetting education in the Philippines. Among the school-related causes are the unqualified and poorly trained teachers, inadequate facilities and equipment, and lack of instructional materials (textbooks and teacher’s manuals). Non-school factors include poverty, low educational attainment and illiteracy of parents, and poor health and nutrition.

In recent years, the DECS has pursued several development programmes and projects through government funding and overseas economic co-operation both multilateral and bilateral. The strategies to improve education include overall review of elementary and secondary education, universal access to and quality of education (notably by emphasizing teaching of English, science, technology and mathematics), provision of alternative delivery schemes (such as multigrade teaching, mobile teaching, and instructional management by parents, community and teachers in disaster areas), management training for principals and school administrators, development of research, improvement of school libraries and teachers’ welfare. Technical and vocational education was also revised in an effort to cope with rapid technological advancements and to provide young people with more meaningful preparation for their future employment. The strategies include curriculum development, improvement of pre- and in-service education of teachers in both public and private schools, updated instructional materials in various fields, and upgrading of equipment for both public and private institutions.

At the higher education level, the strategies include improving access of the poor and disadvantaged, improving quality—notably by focusing on pre-service and in-service training of teachers—, liberalizing policies for private schools, rationalizing state colleges and universities (SUCs), and strengthening linkages with government professional boards for evaluation.

Among the development programmes implemented in recent years, the following should be mentioned:

The Elementary and Secondary Education Project: the aim of the project has been to meet the sector’s requirement for essential physical resources (facilities and equipment), especially in educationally and economically disadvantaged areas; improve the professional competence of teachers and school administrators; expand the population’s basic knowledge and the skills of children at risk of dropping out of school as well as illiterate out-of-school youth and adults; and further develop DECS institutional capacities in planning and management of the education system.

Implementing the New Secondary Education Curriculum (1992-93): mass training of Grade IV teachers was undertaken, and complemented with the production and delivery of textbooks and teachers’ manuals to fully support the implementation of the new curriculum. The physical facilities component of the programme also provided for the construction of 673 packages of equipped and furnished academic classrooms, workshops and science laboratories to augment the accommodations problem in the secondary level.

Science Teaching Improvement Project: this project aims to develop science equipment through research, prototype production, standards setting and tests, and expertise within the educational sector through workshops, seminars, and training of teachers and staff locally and abroad.

Science Equipment Project: this project addresses the pressing need of the public school system for instructional materials and equipment. The National Science Equipment Centre and three Regional Distribution/Service Centres
were developed and institutionalized for the purpose of developing, testing, producing, and distributing science equipment to the public secondary schools.

Rationalizing programme offerings of state colleges and universities on a regional basis: this programme aims at encourage specialization in each SUC and intra-regionally among SUCs with special emphasis on capital and land-intensive courses such as agriculture, technology and engineering, and technical education. It encourages regional co-ordination among SUCs to minimize duplication of programme offerings.

Among the achievements, benefits and performance of the education system over a ten-year period (1986-95), the following should be mentioned:

- Education has been given the highest budgetary priority in the national government budget.
- The New Elementary School Curriculum (NESC) and the New Secondary School Curriculum (NSSC) have been fully implemented.
- Free public secondary education has been implemented.
- The programme of assistance for low-income students and faculty in private schools has been expanded.
- The Education For All plan of action (1991-2000) to provide access to basic education and eradicate illiteracy has been adopted.
- The Values Education Framework has been formulated and implemented.
- Centres of excellence in teacher education have been established.
- Professionalization of the teaching profession has been achieved through the Philippine Teachers Professionalization Act of 1994.
- The National Elementary Achievement Test for Grade VI pupils and the National Secondary Achievement Test for Form IV high school students have been administered.
- Student contact time has increased through a lengthened school calendar and additional time for English, science and mathematics.
- Science education has been strengthened through the establishment of regional science high schools, the formulation and implementation of the Science and Technology Education Plan, the establishment of the Regional Science Teaching Centres, and the organization of the National Science Teaching Instrumentation Centre.
- Policies governing private education have been liberalized—notably as regards curriculum requirements and tuition fee policy—to promote efficiency, autonomy and responsiveness.
- Educational performance during the period has improved, as indicated by the literacy rate, the improved enrollment rate at the primary and secondary levels, the decrease of repetition rates, and the provision of textbooks and instructional materials.

The DECS will continue to provide access to basic education. In accordance with the broadening of accessibility to basic education, the DECS programme commitment has the following components: (a) establishment of a school in every barangay not having an elementary school and in every town without a high school (a barangay is the basic governmental unit in the country’s political structure, consisting of a number of families within the same geographic area); (b) organization of multigrade classrooms; (c) completion of incomplete elementary schools; and (d) provision of basic instructional materials, facilities and equipment at the elementary and high school levels.

In addition, the Master Plan for Basic Education (1996-2005) has the mandate of modernizing education. The programme will be pursued through the introduction of modern instructional materials—such as computers and Internet, videos, well equipped science laboratories and machine shops as well as libraries—to enrich instruction through training programmes and further studies, including staff development abroad, teaching techniques and teachers’ mastery of subject matter. Training programmes will also be provided for the upgrading of managerial skills in planning, project and fund management as well as resource management and community mobilization. Information and telecommunication systems will serve as basic tools for carrying out educational administration and supervision.

**Structure and organization of the education system**
Pre-school education consists of nurseries and kindergartens that cater to children aged 3-6. This level of education is not compulsory.

Elementary education is compulsory and provides basic education to pupils aged 7-12. It consists of six years of study except in a few schools—mainly private—offering a seven-year course. Elementary education is organized into two levels: primary, which covers Grades I-IV; and intermediate, which covers Grades V and VI (or VII). After completing the six-year elementary programme, pupils receive a certificate of graduation.

Secondary education (high school) is a continuation of the basic education provided at the first level. It is expanded to include learning (general education) and training in basic employable skills (vocational/technical education). This covers a period of four years of formal schooling and is addressed to students aged 13-16.

Tertiary education (higher education) provides prescribed courses of studies which are credited towards degrees in academic disciplines or professions. It includes two-year post-secondary technical and vocational courses, various professional courses, and general higher education, including graduate and post-graduate studies (for students aged 17-25). Normally, a baccalaureate degree takes four years. Graduate and post-graduate courses normally take two to three years to complete.

The school year was extended to 200 working days in 1993, with the opening of classes on the first Monday of June and the ending of classes in March.

**The financing of education**

Many of the problems of education today are linked to the under-investment in education. The increase in the education budget from 1986 to 1989 was not sustained in the succeeding three-year period. After reaching a peak of 13.2% of the national budget in 1989, the share of education declined to 11.7% in 1991. Real per capita expenditures declined starting in 1990. The growth in the nominal size of the education budget was attributed to the growth of salary inputs which account for about 70% of total education expenditures. The level of spending is very much below those of other ASEAN countries. Actual expenditure per student increased from 783 pesos (P) in 1986 to P1,380 in 1994 at the elementary level. During the same period, a slight decline was observed at the secondary level from P1,271 to P1,257 per student.

However, education has been given the highest budgetary priority in the national government budget in recent years. Realignments within the DECS budget have been made to augment the financial resources for elementary education. In addition, two-thirds of the President’s Social Fund have been committed primarily to establish new schools in barangays without an elementary school. The share of education in the national budget increased to 14% in 1995. The education budget (DECS and state universities and colleges) increased from P13.13 billion in 1986 to P53.7 billion in 1995. The average teachers’ salary increased from P1,553 per month in 1986 to P5,902 which is probably the highest rate of increase among the various professional groups in the national government. To implement the Master Plan for Basic Education (1996-2005), it is estimated that P50 billion will be allocated for the modernization of basic education in the next ten years.

The national government is authorized by the Constitution to contribute to the financial support of educational programmes. The DECS is likewise asked to formulate measures to broaden access to education through financial assistance and other incentives to schools, teachers, and students. Public elementary schools, national secondary schools, vocational and technical schools, other special schools, and chartered and non-chartered tertiary educational institutions are funded primarily from national funds. Local governments are encouraged to assume the operation of non-national public schools, while the national government provides funds and adequate sources of revenue. Government educational institutions are allowed to receive grants, legacies, and donations for purposes specified by existing laws. The management and use of such income is subject to government accounting and auditing rules and regulations.

Private schools throughout the country are funded from capital investments, equity contributions, tuition fees and other school charges, grants, loans, subsidies and other income sources in accordance with current legislation. The national, regional, provincial, city and municipal governments may also aid school programmes with loans, grants
and scholarships to recognize the complementary role of the government and of private schools in the educational system.

A number of programmes have been funded through international finance assistance. For instance, the Secondary and Elementary Education Project (1990-94) was financed through a support loan from the World Bank with co-financing by the Overseas Economic Co-operation Fund of Japan. The Philippine-Australia Technical and Vocational Education Project aimed at improving the sub-sector was supported by the Australian bilateral assistance. The Science Teaching Improvement Project was jointly financed by the German government and the Philippine government. The Science Equipment Project (1989-1992) was implemented with the financial assistance of the German government.

The educational process

Pre-primary education

Pre-school education at the kindergarten level (age group 5-6 years) must aim to develop children in all aspects (physical, social, emotional, and cognitive) so that they will be better prepared to adjust and cope with life situations and the demands of formal schooling; and to maximize the children’s potential through a variety of carefully selected and meaningful experiences considering their interests and capabilities. The curriculum focuses on the following areas:

- Physical development: it includes gross and fine motor co-ordination through play and manipulative activities like games, simple works, etc.
- Personal-social development: it involves skills and social behaviours and it includes the development of health habits, independence, abilities to follow rules and routines. Learning about the family and other people is part of the concerns in this area.
- Affective development: it includes experiences that help children develop love for God, self, others and the community, and develop awareness of their feelings and sense of the right and wrong.
- Cognitive development: it includes the development of communication skills and sensory-perceptual and numeracy concepts and skills. Communication skills refer to competencies in expressing ideas and feelings both in English and Filipino (oral expression and basic readiness skills of listening, pre-reading and writing). Sensory-perceptual and numeracy skills refer to the ability to observe, discriminate, compare and classify, and to understand, count, read and write numbers.
- Creative-aesthetic development: it includes exploration of sounds, music and rhythms, and the development of children’s creative expression through drawing, painting, manipulative activities.

In order to attain and ensure the holistic development of children, a well-planned curriculum and a well-balanced programme of activities are necessary, although they may vary according to each pre-school’s approach. Indoor and outdoor play are essential whatever approach the pre-school follows. The language spoken by the child should be valued. It is necessary that such language be used initially and until the children have attained the facility and confidence in expressing themselves in English and Filipino.

The Pre-school Education Programme, established in 1992, aims to provide 5-year-olds in disadvantaged areas an opportunity for early peer socialization and learning activities before starting elementary education. The DECS organized a total of 1,428 classes with 40,780 pupils in the twenty provinces covered by the Social Reform Agenda (SRA). A total of 638 pre-school teachers were trained in nine selected regions. Instructional materials and supplies were distributed to classes under the DECS Programme, pre-schools run by Parent-Teacher Associations, and community-based pre-schools.

Primary education

Elementary education provides basic education to pupils aged 7-12. The elementary course comprises six years (in some cases, seven years), the first four years termed primary grades and the last two years, intermediate grades.
The overall mission of elementary education is to enable pupils to acquire a basic preparation that will make them an enlightened, disciplined, self-reliant, God-loving, creative, versatile and productive citizens in a national community. The main objectives of elementary education are:

- to provide knowledge and develop the skills, attitudes and values essential to the children’s personal development and necessary for living in and contributing to a developing and changing social milieu;
- to provide learning experiences aimed at increasing the children’s awareness of and responsiveness to the demands of society, and to prepare them for constructive and effective involvement;
- to promote and intensify the children’s knowledge of, identification with, and love for the nation and the people to which they belong;
- to promote work experiences aimed at developing and enhancing the children’s orientation to the world of work and creativity, and to prepare them for an honest and gainful work.

The school curriculum is the shortest compared to other ASEAN countries and the learning materials are often inadequate. The five important subject areas are science, mathematics, Filipino, English, and civics and culture. Daily class time for Grades I and II is 320 minutes; for Grade III, 360 minutes; for Grade IV, 380 minutes; and for Grades V and VI, 400 minutes.

In 1994/95, the gross enrollment rate in elementary schools was 112.06% and the average teacher-pupil ratio was 1:36. The average size of a class was 40 pupils. The cohort survival rate was 66.5%. The average drop-out rate was 7.5% (ranging from a minimum of 3.1% to a maximum of 21.5%, depending on the region considered) and the average repetition rate was 1.8%. In 1997, the net enrollment ratio was 95.7% and the average drop-out rate was 8.8% (DECS, 1999).

**Secondary education**

Elementary school graduates are admitted into the secondary level which is a continuation of the elementary education programme and a preparation for higher education. The secondary course consists of four years. Curricular offerings are classified as either general or vocational/technical secondary. Elementary and secondary education levels are considered basic education. Secondary education is addressed to students aged 13-16.

The New Secondary Education Curriculum was implemented in 1992/93. The major subject areas are science, mathematics, technology, Filipino, English, and civics/national culture. Technical and vocational education was also revised and adapted to technological progress and employment needs in recent years.

“Vocational and technical education […] covers five main fields, namely, trade (technology, communication, electronics, computers, transportation, etc.), agriculture, fisheries, home industries, and non-traditional courses. These comprise more than 250 different courses of six months’ to three years’ duration. These courses include formal school work in the field of specialization and related academic subjects. In the one-, two- and three-year courses, these are combined with supervised industrial training in a co-operating firm.” (Sutaria, *cit.*, p. 788).

In 1994/95, the gross enrollment rate at the secondary level was 77.16% and the average teacher-student ratio was 1:37. The average size of a class was 49 students. The cohort survival rate was 75.6%. The average drop-out rate was 9.3% (ranging from a minimum of 5.2% to a maximum of 18.2%, depending on the region considered) and the average repetition rate was 1.4%. The National Secondary Achievement Test (NSAT) is a test given to students completing the secondary level.

“As in the elementary school, secondary school students are rated four times a year. If a student fails in a particular subject, he or she repeats the subject the next year, but is, nevertheless, promoted to the next higher year. A certificate is issued to secondary school graduates. All high school graduates seeking admission to post-secondary programmes requiring a minimum of four years’ study are required to qualify in the National College Entrance Examination (NCEE) administered by the National Educational Testing and Research Centre.” (Sutaria, *cit.*, p. 791).
The Commission on Higher Education (CHED) was established by virtue of the Republic Act No. 7722 otherwise known as the 1994 Higher Education Act. The Commission is responsible for the operation of all higher education institutions—both public and private—their policy formulation, planning and programme recommendations. The Commission regulates the establishment or closure of private higher education institutions, their course offerings, curricular development, building specifications and tuition fees.

In order to provide advisory services to the Commission, a panel of experts in the nine major course clusters were appointed for an initial three-year period (1995-97). The Technical Panels are involved in areas such as development and revision of policies and standards, setting directions for their specific programmes, and monitoring and evaluation of programmes.

Public higher education institutions (PHEI) are basically composed of chartered state universities and colleges (CSUC). Other PHEIs include: colleges and schools supervised by the CHED, community colleges, local universities/colleges and other government schools.

Private higher education institutions, both confessional and non-confessional, are fee-paying and enroll about 80% of the total number of collegiate students (2.01 million in 1995/96). Confessional HEIs are usually non-profit institutions owned by religious orders, while non-confessional HEIs are owned by private corporations and they are not affiliated to any religious organization.

Charted state universities and colleges are organized according to their charters. CSUCs are authorized to award degrees or open new courses upon approval of the Board of Regents/Trustees. Private HEIs are organized under the corporation code. They are governed by special laws and the general provisions contained in the corporation code.

Private institutions usually follow the regulations and orders of the CHED but they enjoy a certain degree of autonomy when they reach Level III accreditation.

In response to the continued mismatch between manpower supply and demand and the issue of enhancing the employability of graduates, information dissemination on relevant and in-demand courses based on regional/local needs has been intensified. Course offerings were rationalized to avoid duplication or undesirable competition between and among private tertiary schools and state universities and colleges through continuous review and evaluation of educational programmes by the Regional Development Councils. Tertiary institutions have modified their curricula to suit the needs of their service areas. Alongside, the institutions strengthened their respective areas of specialization by developing the managerial capability of professionals in various fields through building a strong research capability in agriculture, research, technology and environment, and natural resources development.

Higher education institutions have adopted a scheme of voluntary accreditation to upgrade the quality of programme offerings. Other quality assurance mechanisms have been developed to improve various programme clusters, namely: agriculture education; humanities, social sciences and communication; information technology; medical and health related professions; engineering, architecture and technology; science and mathematics; teacher education; business accountancy and industry; and maritime education. Programme offerings include associate diploma courses, baccalaureate courses, and graduate degree courses at the master’s and doctoral levels.

Singapore

Principles and general objectives of education

In general terms, the aim of the education system in Singapore is to bring out the best in all children, provide them with knowledge and skills to earn a living, and develop them into good citizens.

The desired outcomes of education represent a statement of the attributes which every Singaporean should have. For the graduates of the Institute of Technical Education, polytechnics and universities this means:

- being morally upright, culturally rooted yet understanding and respecting differences, responsible to family, community and country;
believing in Singapore’s principles of multi-racialism and meritocracy, appreciating the national constraints but seeing the opportunities;
being constituents of a gracious society;
willing to strive, taking pride in work;
being able to think, reason and deal confidently with the future, with courage and conviction in facing adversity;
being able to seek, process and apply knowledge;
having an innovative spirit seeking continual improvement, lifelong habits of learning, and an enterprising spirit in undertakings;
thinking globally, but rooted to Singapore.

Structure and organization of the education system

Although pre-school education is not compulsory, “almost 99% of children experience one to three years of pre-school education” (Yeoh, 1995, p. 868).

Primary education caters to children starting at age 6 and lasts six years. It consists of a four-year foundation stage (Grades I-IV) and a two-year orientation stage (Grades V and VI).

Pupils are placed in secondary school courses based on their Primary School-leaving Examination (PSLE) performance. Pupils who are within the top 10% in the PSLE can choose to go to the Special course. Other pupils are placed in either the Express course or the Normal course. The Special and the Express courses are four-year programmes (Grades VII-X) leading to the Singapore-Cambridge General Certificate of Education Ordinary level (GCE O-level) examination. The Normal course offers a four-year programme leading to the GCE N-level examination.

Students who complete secondary education “may either go on to junior colleges (Grades XI and XII) or seek alternatives studies at either the polytechnics or the vocationally oriented Institute of Technical Education.” (Yeoh, 1995, p. 866). Junior colleges offer two years of the GCE Advanced level (A-level) studies preparing for tertiary education. Polytechnics provide full-time courses leading to the award of the three-year diploma or two-year certificate. The Institute of Technical Education offers two to three years full-time vocationally oriented courses leading to the award of the National Technical Certificate, Grade II (NTC-2). “More able students can advance to higher level courses whose training leads to the award of the certificate in fields such as business studies and office skills” (ibid.).

Admission to the two universities depends on the academic performance at the Singapore-Cambridge GCE A-level public examination. Universities offer degrees and post-graduate studies in a wide range of disciplines.

The school year is divided into two semesters, each one including two terms. It consists of forty weeks (thirty-six weeks of effective instruction).

The financing of education

In 1997, government recurrent expenditure on education per student was as follows: primary level, 3,230 Singapore dollars (S$); secondary level, S$4,845; junior colleges, S$7,715; Institute of Technical Education, S$8,942; polytechnics, S$8,856; universities (including the National University of Singapore, Nanyang Technological University and the National Institute of Education), S$19,926. (Singapore Department of Statistics, 1998).

The educational process

Pre-primary education

Pre-school education is not compulsory and is offered by the private sector. “Strict guidelines and supervision are provided by the Ministry of Community Development (MCD) for the running of the childcare centres while the Ministry of Education oversees the running of the kindergartens. In 1992, there were 345 centres and kindergartens
with an enrollment of 94,318 children aged from 6 months to 6 years. [...] The pre-school centres provide graded instructional programmes generally to enhance the overall development of the pre-schoolers and to lay a good foundation for formal education. To this end, most pre-school centres offer a programme of daily activities which includes exposure to two languages, pre-primary work, indoor free choice activities, outdoor play, story/rhyme time, music and movement, and social skills activities. [...] In 1993, there were over a thousand trained kindergarten teachers and three times that number of childcare assistant teachers, teachers, and supervisors. Corresponding to the rapid expansion of enrollment in the childcare centres, the teachers who are trained in the National Institute of Education (NIE) are awarded the Basic or Intermediate Certificates for teachers and the Advanced Certificate in Early Childhood education for the supervisors” (Yeoh, 1995, p. 868).

Primary education

Primary education consists of a four-year foundation stage (Grades I-IV) and a two-year orientation stage (Grades V and VI). The overall aim of primary education is to give children a good grasp of English, the mother tongue and mathematics.

At the end of primary school, pupils should:

- be able to distinguish right from wrong;
- have learnt to share and put others first;
- be able to build friendships with others;
- have a lively curiosity about things;
- be able to think for and express themselves;
- take pride in their work;
- have cultivated healthy habits;
- love Singapore.

The foundation stage is the first stage of formal schooling. The first four years concentrate on English, the mother tongue (Chinese, Malay or Tamil) and mathematics. Other subjects include: civics and moral education, science, social studies, art and crafts, music, health education and physical education. At the two-year orientation stage, there are three main language streams available—the EM1, EM2 and EM3 streams. An ME3 stream is also available if there is demand for it. At the end of Grade IV, pupils are assessed on their performance in English, the mother tongue and mathematics. Based on this assessment, the school recommends the stream which pupils should attend in Grade V.

In the first four years, pupils focus their attention on the two languages and mathematics. The learning of English in the early years includes the study of general topics such as health education and social studies. The study of the mother tongue includes civics and moral education. On the average, over the four years, 33% of the curriculum time is spent on English, 27% on the mother tongue, 20% on mathematics and the remaining 20% on the other subjects such as art and crafts, music and physical education. Science is taught from Grade III onwards and social studies from Grade IV onwards.

Pupils doing very well in English, the mother tongue and mathematics are recommended for the EM1 stream offering English and the mother tongue as first languages at a higher level (i.e. Higher Chinese, Higher Malay or Higher Tamil, formerly known as CL1, ML1 and TL1). The majority of pupils are recommended for the EM2 stream which teaches English as first language and mother tongue as second language (Chinese, Malay or Tamil, formerly known as CL2, ML2 and TL2). The principals decide if pupils need additional lessons in English in the EM2 (E) sub-stream, or the mother tongue in the EM2 (MT) sub-stream. If a pupil is less able to cope with languages and mathematics, he/she will be recommended for the EM3 stream, offering English as first language and the mother tongue at basic oral proficiency level. The teaching of the mother tongue emphasizes oral skills, reading and listening comprehension as well as conversation. Parents of children recommended for the EM3 stream may opt for the ME3 stream. Schools provide ME3 classes if there is sufficient demand for them. Pupils in the ME3 stream study the mother tongue as first language (Higher Chinese, Higher Malay or Higher Tamil) and English at basic level, emphasizing oral skills, reading and listening comprehension, as well as conversation. The language of
instruction for all school subjects in the ME3 stream is the mother tongue. Transfers between streams are possible at the end of Grade V. These are decided by the principal on the basis of pupil’s progress.

Retention is not generally practiced in Grades I-IV; but, in exceptional cases, such as those which lead a pupil to miss school for a good part of the year, he/she may be retained in a particular class. A pupil in Grade V may be allowed to repeat in the following year if the principal thinks that he/she will benefit from this retention. In particular, a pupil in Grade V in the EM3 stream may be retained in Grade V in the EM2 stream if the principal feels that it will help the pupil to join the EM2 stream.

The Primary School-leaving Examination (PSLE) is a national examination which pupils sit at the end of Grade VI, no matter which stream they are in. Its purpose is to assess pupils’ suitability for secondary education and place them in the right secondary school course, one that matches their learning pace, ability and inclinations.

If a pupil is in the EM1 or EM2 stream, he/she will sit for four subjects at PSLE, namely English, the mother tongue (Chinese, Malay or Tamil), mathematics and science. If he/she is in the EM1 stream, he/she may also sit for an additional paper, the mother tongue (at Higher Chinese, Higher Malay or Higher Tamil level). If a pupil is in the EM3 stream, he/she will sit for three subjects at PSLE, namely English, the mother tongue at basic proficiency level and mathematics. Pupils in the ME3 stream will also sit for three subjects at PSLE, namely the mother tongue (at Higher Chinese, Higher Malay or Higher Tamil level), basic English and mathematics—which will be examined in the mother tongue.

All pupils who sit the PSLE and successfully complete primary education go on to secondary school. Depending on their PSLE results, they will go to the Special course, Express course or Normal course at the secondary level. The Special and Express courses lead to the GCE O-level examination in four years, whereas the Normal course leads to the GCE N-level examination in four years, with a fifth year leading to the GCE O-level examination. There are two course options within the Normal course, the Normal (Technical) and the Normal (Academic) course. The Normal (Technical) course will gear pupils towards technical-vocational education and training in technical or commercial institutes. There may also be appropriate courses at secondary level for pupils from the ME3 stream, if there is sufficient demand.

Secondary and post-secondary education

Students are placed in secondary school courses according their performance at the PSLE. Students who are within the top 10% in the PSLE can choose to go to the Special course. Other pupils are placed in either the Express course or the Normal course based on their PSLE results. Generally, each school will offer two courses, Special and Express, or Express and Normal. The latter includes both the Normal (Academic) N(A) and the Normal (Technical) N(T) course.

At the end of secondary school, students should:

- have moral integrity;
- have care and concern for others;
- be able to work in teams and value every contribution;
- be enterprising and innovative;
- possess a broad-based foundation for further education;
- believe in their ability;
- have an appreciation for aesthetics;
- know and believe in Singapore.

The Special course is a four-year course leading to the Singapore-Cambridge GCE O-level examination. In this course, students study English and Higher Chinese, Higher Malay or Higher Tamil, in addition to the usual humanities, mathematics and science subjects. In Form I (Grade VII) and Form II (Grade VIII) students are taught a common curriculum. In Form III (Grade IX) and Form IV (Grade X), students are offered a core curriculum which includes the two languages and a choice of elective subjects. This course is suitable only for students who are strong in both English and the mother tongue and have a good score in their PSLE (within the top 10%).
Students can move from one course to another at the lower secondary levels. Schools keep records of students’ performance and progress to assure fair and accurate decisions are made regarding the movement of students across courses and levels. Transfer from a less demanding to a more demanding course and vice versa may take place at the end of Form I and Form II, based on the performance of students and the professional assessment of the principal and teachers. Transfer from the N(A) to the N(T) course and vice versa may, however, take place at the end of Form I, based on the performance of students and the professional assessment of the principal and teachers.

In the Special and Express course (Forms I-II) the common curriculum includes: English, the appropriate mother tongue, mathematics, general science, literature, history, geography, art and crafts, design and technology or home economics—which are examination subjects. In addition, the curriculum includes civics and moral education, music and physical education—as non-examination subjects. Students in the top 10% of the PSLE cohort who are good in languages and are also very good in their other subjects, may be offered a third language (German, French, Japanese or Malay Elective), subject to the availability of places. In Forms III and IV, core subjects are: English, the appropriate mother tongue, mathematics, a science subject, a humanities subject, and up to four elective subjects that best match students’ abilities and interests. Those who are talented in art and music may choose these subjects under the art and music elective programmes, if they meet the selection requirements. Civics and moral education, music and physical education continue to be taught as non-examination subjects.

In general, students take seven or eight subjects at the GCE O-level examination. Those of exceptional academic ability may take a ninth subject.

Students in Forms I and II in the N(A) course follow common curriculum including: English, the mother tongue, mathematics, general science, literature, history, geography, art and crafts, design and technology or home economics as examination subjects. In addition, they are taught civics and moral education, music and physical education, as non-examination subjects. In Forms III-V, the curriculum includes English, the mother tongue and mathematics as core subjects and two to four electives. These electives could be chosen from a range of subjects in the humanities and sciences, and other practical subjects such as food and nutrition, fashion and fabrics, design and technology, principles of accounts and commerce. Civics and moral education, music and physical education continue to be taught as non-examination subjects.

Students in Forms I and II in the N(T) course follow a common curriculum including: English, the mother tongue at the basic level, mathematics, computer applications, science, technical studies and home economics. Social studies, art and crafts, civics and moral education and physical education are non-examination subjects. In Forms III-IV, the curriculum includes: English, the mother tongue at the basic level, mathematics and computer applications as core subjects, and up to three electives. These electives are: technical studies (or design and technology), science, food and nutrition, fashion and fabrics, art and crafts and elements of office administration. Civics and moral education, music and physical education continue to be taught as non-examination subjects.

In general, students in both the N(A) and N(T) course take five to seven subjects in the GCE N-level examination. As already mentioned, students who do well in the GCE N-level examination will have the option of doing a fifth year in school and be prepared for the GCE O-level examination.

For a balanced education, students are required to participate in extra-curricular activities. In general, students participate in one sports and games activity and another activity chosen from the list of uniformed organizations, or cultural activities such as music, dance, art and crafts and drama.

Under-achievers can be retained or laterally transferred to a less demanding course. When deciding on student movements, school principals and teachers exercise their professional judgement in the best interests of their students.

Students who are academically inclined and have the necessary GCE O-level qualifications may apply for pre-university (post-secondary) education at the junior colleges, centralized institutes and pre-university centres. This course of studies leads to the GCE A-level examination. Admission to the universities depends on performance at this examination. Students with technical and commercial inclinations and the necessary GCE O-level grades can apply to the polytechnics. Polytechnic graduates with good grades in their studies will have the opportunity to
pursue tertiary education at the universities. Students with GCE O- or N-level certificates can join technical-vocational courses offered by the Institute of Technical Education. Those who do well in these courses will be able to proceed to the polytechnics for diploma programmes.

The first junior college was established in 1969. In the 1970s, another six colleges were established and in the 1980s the remaining seven were established. Today there are fourteen junior colleges spread across the island. In 1997 (end of June), there were 21,273 students enrolled and the total teaching staff was 1,510.

At the end of junior college, students should:

- be resilient and resolute;
- have a sound sense of social responsibility;
- understand what it takes to inspire and motivate others;
- have an entrepreneurial and creative spirit;
- be able to think independently and creatively;
- strive for excellence;
- have a zest for life;
- understand what it takes to lead Singapore.

The junior college offers an advanced curriculum that stresses academic and mental discipline and so prepares a student for university entry. The Singapore-Cambridge GCE A-level examination, for which all junior college students sit at the end of two years of study, acts as a university entrance examination. This is an examination recognized both by local universities and universities abroad. With a good A-level certificate, the student enters the university immediately, or after National Service in the case of young men. Work experience is not required.

**Higher education**

As mentioned, non-university (post-secondary) education is offered by fourteen junior colleges, the Institute of Technical Education (ITE), centralized institutes, pre-university centres and four polytechnics.

The Nanyang Polytechnic (NYP), established in April 1992, offers twenty diploma programmes as well as a wide variety of advanced diploma and specialist courses designed for professionals. In 1996/97, it had an enrollment of over 7,700 full-time students in its four schools.

The Ngee Ann Polytechnic, the Singapore Polytechnic and the Temasek Polytechnic offer a wide range of full-time and part-time courses at the certificate, diploma and advanced diploma levels. In 1996/97, the total full-time enrollment was 14,480, 19,787 and 7,463, respectively.

University education is provided by two universities. The Nanyang Technological University (NTU), through its six schools, offers undergraduate courses in accountancy, business, communication studies, engineering and applied science. It also offers post-graduate programmes leading to the degrees of Master, Doctor of Philosophy and post-graduate diplomas. The National Institute of Education (NIE) is part of NTU and provides professional training for teachers, as well as the study of science, physical education, the humanities and fine arts in its four schools. The NIE offers courses leading to either a Bachelor of Arts or a Bachelor of Science degree with a Diploma in Education/Physical Education. It also offers a post-graduate diploma in education programme for university graduates, and a two-year diploma in education/physical education programme for holders of GCE A-level qualifications.

The National University of Singapore (NUS) has eight faculties (architecture and building, arts and social sciences, business administration, dentistry, engineering, law, medicine and science) comprising more than fifty teaching departments. In addition to undergraduate courses, NUS faculties and four post-graduate schools offer courses and research work at the post-graduate level. The University also hosts several national research institutes and centres in the fields of engineering, medicine, science and information technology. In 1996/97, the undergraduate enrollment was 17,960, while a total of 4,318 students were pursuing post-graduate studies in the various disciplines. In the same year, the University had more than 2,700 teaching and research staff.
The SEAMEO Regional Language Centre (RELC) is an educational project of the Southeast Asian Ministers of Education Organization (SEAMEO). Its members are Brunei Darussalam, Cambodia, Indonesia, Lao People’s Democratic Republic, Malaysia, the Philippines, Singapore, Thailand and Vietnam. Australia, Canada, France, Germany, the Netherlands and New Zealand are associate members. The centre conducts advanced courses in language teaching, undertakes and promotes research, disseminates information, and provides library and information services. The regular post-graduate courses lead to the Diploma in Applied Linguistics or the Master of Arts in Applied Linguistics. Shorter courses lead to the Certificate in Applied Linguistics, the Teaching of English for Business and Technology and specialized areas.