

Education, Economic Growth, and Social Change

This section analyzes links between education and economic growth, giving special attention to the economic and education experiences of the NIEs. It also explores linkages between education and poverty. A brief look is taken at core activities in education, teaching, and learning; and trends and strategies are examined for each major education subsector.

Education and Economic Growth

Economic growth is important for national development. Economic growth is generally assumed to be explained largely by stocks of labor, physical capital, and human capital (improvement in the quality of the labor force). Technology is assumed to be part of the growth equation, and the rate of technological change is associated with the availability of highly educated workers. Demographic structure and change support or inhibit economic growth.

As seen earlier, Group 2 is distinguished from other groups by many indicators. Group 2 has by far the highest mean GDP per capita, the highest economic growth rate, the lowest percentage of the labor force in agriculture, and the highest percentage of the labor force in industry and services. Group 1 ranks fifth in GDP per capita but second in the economic growth rate. Although primarily agricultural, this group has a substantial and growing industrial sector. Group 3 stays close to the middle ranking: third in GDP per capita, third in economic growth rate, and fifth in the percentage of labor in industry (Table 10).

Groups 4 and 5 are low-income agricultural countries, although Group 4 has a much larger proportion of labor force in industry. On nearly every indicator, Group 5 exhibits a wide range of values. Group 6 is comprised of nations with economic difficulty but relatively high education levels. Countries in Group 6 and socialist countries in Groups 1, 4, and 5 are, with differing rates of speed, moving from centralized or command economies to market economies (or socialist-market economies) which allow entrepreneurship and private capital formation. This transition for some Group 6 countries has resulted in negative economic growth. The rankings for Group 7 vary from second in GDP per capita to fifth in rate of economic growth.

The structure of a country's population provides one important context for understanding the growth of education systems and the constraints on support for economic growth. The size of the dependency ratio, i.e., of those population groups assumed to be less economically productive (typically age

Table 10: GDP per Capita Annual Growth Rates, 1985-1995

<i>Group</i>	<i>Countries</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>
1	2	5.75	3.20	8.30
2	4	6.10	4.80	7.70
3	5	3.94	1.20	8.40
4	2	(0.85)	(3.80)	2.10
5	2	2.55	2.40	2.70
6	3	(6.46)	(8.60)	(0.39)
7	1	2.30	2.30	2.30
Total	19	2.20	(8.60)	8.40

Note: Data in parentheses are negative.

Sources: UNESCO 1989, 1998.

groupings 0-14, and over 60 years of age), helps define the magnitude of social services, and, when large, has a moderating effect on economic growth. The dependency ratios of the 0-14 age groupings vary across DMCs from 19 percent in Hong Kong, China to 51 percent in the Marshall Islands. Groups of countries with high population growth rates and fertility rates, e.g., Groups 4, 5, and 7, have large percentages of population under age 15, suggesting a potential high demand for the early levels of education and constraint on efforts to improve education quality. The contribution of education to economic growth is generally found to be positive and significant when measured either in monetary terms or directly in terms of agricultural efficiency or labor productivity. Education also may contribute to poverty reduction, improvement in income distribution, and various dimensions of social, demographic, and political development. Although subject to some controversy, the relative significance of human capital has also been found to be generally stronger in less developed countries than in more developed countries (Psacharopoulos 1994; Tilak 1994, 1997).

Education at all levels contributes to economic growth through imparting attitudes and skills necessary for a variety of workplaces. Education also contributes to economic growth by improving health and reducing fertility, and – possibly – by contributing to political stability. Although the link between education and labor productivity is not entirely clear, general knowledge and learning skills acquired in school are usually assumed to make workers more capable of acquiring new skills and adapting to new working environments. The relevance of the education system to the labor market thus lies most fundamentally in its ability to produce a literate, disciplined, flexible labor force through a high-quality, universal basic education. As the economy continues to develop and new technology is applied to production, the demand for workers with more and better education increases. For example, countries with export-oriented industries have higher education requirements than those areas continuing with traditional agriculture and commerce. An example is the more industrialized coastal regions of the PRC, where lower secondary education plus language and computer skills are now required, as compared with inland regions where basic literacy suffices for traditional agricultural work.

A United Nations Development Programme (UNDP) report (1997, 97) observes that people who lack basic skills "cannot adapt to changing market

conditions or shift to more sophisticated exports.” The impact of globalization, integration of the world economy, deregulation of markets, technological change, migration of labor, and the rate of accumulation of new knowledge, all hasten the significant changes taking place in the technologies found in the labor markets in many countries, and impose new demands on education. The knowledge-intensive aspects of labor, now well-developed in a number of DMCs (most especially in Groups 2 and 3, but to some degree in all groups) require persons with the highest levels of technical and managerial competence. To respond to such needs, increasing differentiation is necessary at higher education levels, and availability of learning with different foci and at different ages. Advanced learning opportunities for economically advanced countries will mean high proportions of enrollments in science, industrial technology, information technology, and management.

The contrasting education and economic experiences of the NIEs and those of many of the other economies of South and Southeast Asia are striking. In the 1960s, all these economies were approximately at the same level of economic development. However, over the last three decades, growth in per capita incomes in East Asia has been about four times as fast as in South Asia. To some extent each nation sets its own priorities and follows its own route to development. Thus, the histories of those economies that have undergone sustained rapid economic growth may not represent the future of less developed nations. Nevertheless, a brief review of the education experiences of the NIEs can inform national and international discussions of education policies and practice, raise issues, and suggest directions and strategies worthy of examination.

The international research literature offers many, sometimes conflicting, reasons for the economic success of these economies. Supporting national policies have been stressed, including: outward-looking strategies; institutional reforms; land reforms; high-quality and merit-based economic technology; a reliable legal framework; political stability; savings and investment; good governance; demographic structure; and policy. Favorable demographic conditions identified include an increasing and relatively healthy labor force and a decreasing dependency ratio. Early and continued investment in education forming a satisfactory threshold level of human capital accumulation is also frequently cited as having a major impact on growth. In the view of the World Bank (1995), for example, primary education is the largest single contributor to the NIEs' economic growth rates. The NIEs tended to emphasize high-quality primary education accompanied by a largely self-financed university system. By contrast, as Haq (1997) points out, South Asian countries spent much of their small budgets on subsidies to higher levels of education.

The following is a summary of characteristics of NIEs prior to, or early in, the period of rapid economic growth:

- Every NIE as it entered its period of sustained economic growth already had in place a well-developed system of basic education that provided a minimum of six years of education for nearly all boys and girls. Some NIEs, e.g., the Republic of Korea and Taipei, China,

had developed extensive secondary and higher education systems early in their industrialization.

- National commitment and political support for education was demonstrated in all the NIEs by enabling laws, national policies, and adequate central financing. Government expenditures on education were not, though, necessarily high prior to economic take-off, and in terms of education expenditures as a percentage of GNP, a significant variation can be found among NIEs. However, government efforts were often complemented by private education institutions and by significant financial and labor contributions from parents.
- At all levels of the government and education bureaucracies, including school, community, and family levels, there were high expectations for basic education. Teacher and pupil absenteeism was low, and teacher quality was comparatively high. The NIEs tended to be pragmatic and opportunistic in attempts to address problems of efficiency, quality, and equity in education. Innovations ran the technological gamut and covered a wide range of uses of personnel and facilities, including large classes. The education role of government in some NIEs, e.g., the Republic of Korea, changed incrementally as development proceeded. In the earlier period of growth, the central government acted essentially as a regulator, mandating changes and reforms. Subsequently, the government acted more as a facilitator, sponsoring and advocating exemplar programs.
- The record of NIEs in terms of provision of equal education opportunities to females has been mixed. Near-universal primary education for girls was quickly achieved. At higher levels of education, however, some disparity in enrollment rates persisted; and in post-school work opportunities, discriminatory practices favoring males remain the norm.

These rapidly growing economies have not been without educational, social, and economic problems. Educators in the NIEs are increasingly questioning the quality of their education systems. The human resources produced by the schools have learned to run the prevailing technology of development. The new education question is whether the schools can better assist in the acquisition of higher-order skills and creativity to sustain economic and social change. Moreover, at least some people are contemplating the price of recent successes. Visible along with the several attractive results of economic vitality are less attractive accompaniments, such as intergenerational contrasts in lifestyles and lack of communication, youth alienation and violence, intense competition for elite institutions, and overemphasis on consumerism. Nor has economic growth been a linear path upward. A variety of conditions, including global competition and bad investments and subsequent large debts by major industries, resulted in an economic downturn in the late 1990s.

Several attempts have been made to discern economic and education lessons from the experience of the NIEs. The macroeconomic policies and

priority to human capital development have been applauded by international agencies and emulated by other Asian countries. A complete replication of the experience of any of the NIEs by another economy is, of course, impossible.

Education and Poverty Reduction

An old proverb observes that "a rising tide lifts all boats." Family income tends to be strongly associated with a reduction in the incidence of poverty. Likewise, economic growth is a powerful weapon against poverty, although growth does not necessarily eliminate poverty. As with education and economic growth, there is a two-way relationship between education and poverty. Family income is strongly positively associated with education attainment, and low earnings of the poor are the result partly of lower human capital endowments and partly of labor market discrimination (Quibria 1994). Reflecting the association of education and poverty, in the Philippines, data from 97 provinces and cities with provincial status demonstrated that the incidence of poverty was associated with the extent of school participation, frequency of school completion, and level and quality of school staffing.

Poverty reduces the opportunity for education attainment and acquisition of education outcomes, e.g., advanced education and preferred employment. Although data are lacking for many DMCs on percentages of population living in poverty, available data are consistent with other social and demographic indicators. For example, Group 5 has more than half its population in poverty, e.g., Nepal 53 percent, while for Group 3 the equivalent figure is 11.5 percent.

Many of the poor are women. Although no single profile suffices to describe women in poverty, many poor females live in villages, are not active in the labor force, are illiterate or have a low level of education, have few marketable skills, and, as women, are subject to discriminatory laws and traditions that inhibit their opportunities for equitable participation in employment. Conditions vary across and within country groupings, but no country has achieved full gender equity in the household, education system, and workplace. Indeed in Group 6, in countries that politically and economically are making a radical break with the past, a renewal of certain ethnic and religious traditions has been seen, accompanied by a reduction in female opportunities.

Women participate less than men in labor markets, and wage rates for females are consistently lower than those for males. Women constitute the majority of unpaid family workers. Some increases in female labor force participation rates can be found in several Asian economies and can be attributed to several factors, including social and cultural transformations in societies that have altered women's attitudes; economic development; changes in family structure; and increases in education. Given the conditions of limited labor force involvement, self-employment may be the only realistic option for many urban women and men. Policies thus are needed to improve the productivity of self-employed and unpaid family workers as well as efforts to create more employment opportunities to become wage workers. Although the link between education and employment is often tenuous, provision of

schooling is one approach to the creation and distribution of new individual and family wealth. Schooling thus contributes to the reduction of absolute and relative poverty. However, these influences of education do not take effect until the poor begin to earn more or become self-employed, and consume more effectively – changes that may require a generation. Moreover, the marginal individual benefits of additional schooling when relatively few complete schooling tend to be greater than when graduation ratios are high. Additionally a debate persists on the relative value of general education and specific skill training, e.g., entrepreneurship and basic accounting, for the urban informal sector (Lee 2002).

Laws and policies supportive of equal opportunities for girls and women in the workplace are critically important but may not be sufficient to alter inhibiting gender traditions and culture. Governments and international agencies committed to gender equity need vigorously to encourage equitable employment conditions at all institutional levels from the family to the state. Within the education sector, strategies are necessary to promote more women to decision-making roles.

Education, Social Change, and Social Cohesion

New, broader definitions of development have emerged. In addition to traditional economic measures, another language and new concepts have entered the discourse on national development. The newer terms include poverty reduction, social justice, environmental sustainability, human rights, and, at times, empowerment. This extended conceptualization of development is being translated into a larger range of policies and programs to address new human and social dimensions. This change is recognized by international agencies whose priorities increasingly focus on improving individual competencies and building institutional capacities rather than focusing only on physical infrastructure.

Social changes may be seen as integral to, prerequisite to, or a consequence of, economic development. The effects of industrialization and globalization are making changes at the individual, family, and workplace levels. Gender has emerged internationally as a social and political issue, and questions are being asked by those concerned with gender equity as to what rules govern access to, and control over, resources and labor, and how definitions of rules, rights, and obligations are reinforced and on occasion, openly challenged.

Information and education are two ingredients for helping individuals and institutions participate in social change. Countries that rank comparatively high in terms of circulation of newspapers and television sets per 1,000 population tend to be more economically and educationally advanced. Among DMCs, circulation of daily newspapers per 1,000 inhabitants is extremely low in all groups with the exception of Group 2. Groups 1, 3, 4, 5, 6, and 7 cluster as a group distinct from Group 2 with a daily circulation ranging from 5.5 to 62.3, while Group 2 has a daily circulation of an average 407.2 newspapers per

1,000 inhabitants. Circulation is especially low in Group 5 with a maximum of 8 and in Group 6 with a maximum of 11 newspapers. Groups 2 and 6 rank at the top for number of television sets per 1,000 inhabitants. Groups 4 and 5 cluster at the lower end, but other groups exhibit a large standard deviation and a wide range, indicating considerable variation within each group.

The social objectives for education are commonly ambitious, and may include:

- developing among students a critical orientation toward institutions and social problems;
- eliminating discrimination and reducing elitism;
- promoting national unity;
- learning to work cooperatively with others;
- resolving conflicts nonviolently; and
- developing self-reliance.

National and family education objectives suggest that learning should be more than examination results on standardized achievement tests. Such tests at best measure a small fraction of acquired knowledge, and relate little to many of the values, beliefs, and traditions that families and societies wish to perpetuate. Education may be seen as a source of self-development or of skills to cope with a wide variety of external problems, including the productivity of labor. As education systems develop, the education process may be expected to turn its attention to higher-order goals such as problem solving and creativity, which themselves are processes, and which are seen as more enduring and widely applicable forms of learning.

Major education changes and reforms reflect the social, cultural, religious, and political contexts and traditions of particular countries. Extensions of the length of basic education and responses to demand for secondary and higher education are often stimulated as much by motivation to build political capital as by concern for improved human capital. However, education changes are also initiated through the regular processes of particular education bureaucracies in their attempts to adapt and improve the functioning of education systems.

Formal education cannot eliminate problems associated with social and economic change, nor even fully prepare the population to cope with these changes. However, an effective and equitable system of formal and nonformal education can promote intergroup parity (rural-urban, gender), develop shared appreciations, bring home and school closer together, and increase at the community level the sharing of decisions affecting youth. Carnoy (1995) suggests that there are two opposing social views of education. One stresses capital accumulation and the other social equality. He suggests that there is an inherent conflict between schooling's role in preparing labor for a modernizing economy and its role in equalizing opportunities and providing social opportunity.

Carnoy's analysis may be valid, and much of the international literature defends the priority accorded to basic education on the grounds of its

contribution to productivity. However, shifts in priority from higher to lower levels of education can also be defended on equity and cultural grounds such as social mobility. Emphasis on basic education helps the lowest income groups gain education and social access. This priority further allows the targeting of remote areas and ignored populations.

Teaching and Learning: Inside the Black Box

Improvements in the quality – and to some extent the efficiency and equity – of education depend on the nexus of teaching and learning. The characteristics, meanings, and effects of the interaction of teachers and students cannot be mandated from central offices of ministries of education. Schooling – the formal teaching-learning environment – is to some extent a self-contained system, and different schools (or even classrooms) may respond to given sets of inputs in different ways. This section examines the dimensions of effective teaching and learning within the school, and its immediate external relations with parents and communities.

Although attempts to measure learning within and outside school settings take place in all DMCs, comparative cross-country data on student achievement are rare. The studies by the International Association for the Evaluation of Educational Achievement (IEA) of science learning include data from Hong Kong, China; Republic of Korea; Papua New Guinea; Philippines; Singapore; Taipei, China; and Thailand, along with data from 13 other economies (Postlethwaite and Wiley 1992). The results show that for the 14-year-old international population samples, the Republic of Korea and Taipei, China ranked fifth and seventh, respectively; Singapore and Thailand 14th and 15th; and Papua New Guinea and Hong Kong, China 18th and 19th. In the pre-university sample the positions changed: Hong Kong, China ranked first or second for each of the three main science subjects, with Singapore close behind. The performance of the Republic of Korea overlapped with Thailand's, ranked between 13th and 15th. Singapore and Hong Kong, China both have very selective systems, which partly explains their superior performance at the pre-university level. Those taking science in these economies are a much more selected group than in the Republic of Korea. These assessments confirm that the performance of 13-year-olds in science in the Republic of Korea is better than in most developed countries in the study, as is that of Taipei, China and the PRC samples. In mathematics, similar patterns appear with the same economies performing at the highest ranks.

Many of the policy documents published by the World Bank and ADB seek to specify inputs that determine academic achievement and knowledge skills that translate directly into increased productivity of labor. Tables 11 and 12 summarize two bodies of research related to the determinants of school outputs, typically measured by scores on standardized achievement tests. Table 11 presents the findings of a number of studies of school effects in Asia using a production function or input-output model. The available studies are few, and generalizations to all DMCs are not possible. However, the

contradictions among the findings are striking. Table 12 summarizes a body of literature known as “effective schools research.” Although this research, in terms of variables examined, overlaps with the studies referred to in Table 11, somewhat more attention is given to school process variables (Chapman and Adams 2002).

The advantage of the input-output studies as reported in Table 11 is that a policymaker is shown a number of manipulable variables or conditions around which intervention strategies may be developed. Although many studies of school effects have been carried out in a number of Asian countries, they are rarely comparable. Studies on noncomparable populations in different time periods in Indonesia suggest some improvement in equality over the last few decades (Moegiadi 1976; Suryadi 1989). There are, however, two major weaknesses of such studies as a basis for education policy. First, the inconsistency of findings rarely offers a clear, unequivocal direction as to which inputs should have priority. Second, the input-output (production function) model on which these studies are based radically oversimplifies the dynamic and situation-specific nature of teaching-learning processes.

Table 12 summarizes the second body of relevant research, i.e., effective schools research, and captures many of the organizational and process variables found in these studies. Because of the general, and sometimes vague, nature of several of these dimensions, e.g., positive school climate and effective use of instructional time, the research cannot easily be used to develop more effective schools. Moreover, the research on effective schools, largely carried out in Europe and North America, shares many of the weaknesses of school-effects studies: lack of underlying theory, methodological weaknesses, and lack of consistency of findings. The summary of conditions of effective schools shown in Table 12 is one of many that could have been developed from available research.

In developing viable and dynamic education systems, a major priority is the creation of a sustainable learning environment of acceptable quality. Teachers and teaching shape the quality of learning. However, research offers limited policy direction regarding how much should be invested in which kinds of training. As shown in Tables 11 and 12, some scattered research attempts to determine which teacher inputs improve student learning. However, the findings are inconsistent across countries and require much caution as a basis for policy. There is not, for example, a consistent relationship between years of formal education, extent of preservice and in-service training, education expenditures, class size, and student performance.

Other apparent solutions to improvements of teaching and learning turn out to be complex because of organizational context. For example, teacher motivation is widely assumed to be a contributing factor to improved instruction and learning. Frequently suggested incentives include (i) merit pay to motivate teachers with a significant portion of a teachers' salary based on performance as assessed by supervisors; (ii) salary premiums to mathematics and science teachers; and (iii) location premiums to teachers working in rural areas (Chapman 2002).

Table 11: Selected Studies of School Effects in Asian Economies

<i>Study</i>	<i>Economy</i>	<i>Findings</i>	<i>Source</i>
School expenditures per pupil	Malaysia (secondary)	Higher school expenditures are not associated with higher achievement.	Beebout 1972
	Thailand	Textbook expenditures raise the national academic achievement.	Heyneman and Jamison 1984
Class size	Thailand	Negative evidence that small class size improves student achievement in reading and science.	Heyneman and Loxley 1983
	India	No evidence that smaller class size raises achievement.	Heyneman and Loxley 1983
	Malaysia (secondary)	Fewer students per teacher improve the quality of interaction and raise achievement.	Beebout 1972
	Indonesia (secondary)	No evidence that smaller class size improves student achievement.	Sembiring and Livingstone 1981
	Indonesia (primary)	Class size has negative effects on student achievement.	Moegiadi 1976
School size	Thailand	School size does affect student achievement.	Comber and Keeves 1973
	Malaysia (primary)	Large school size has negative effect on student achievement.	Beebout 1972
Instructional materials	India	Greater availability of instructional materials leads to higher student achievement in reading and science.	Comber and Keeves 1973
	Philippines	Instructional materials do impact on student achievement in science.	Heyneman et al. 1983
	Indonesia (secondary)	No evidence that instructional materials lead to higher student achievement.	Sembiring and Livingstone 1981
	Thailand (primary)	Instructional materials do not improve student achievement.	Fuller and Chantavanish 1976
	Malaysia (primary)	Instructional materials do matter in student achievement.	Haron 1977
School library	India, Thailand	The presence and active use of a school library raise achievement.	Thorndike 1973
	Malaysia (primary and secondary)	Ditto.	Haron 1977
	Indonesia (secondary)	The availability and use of a library do not improve student achievement.	Beebout 1972; Sembiring et al. 1981
Laboratories	India (primary), Iran, Thailand	The presence and instructional time spent in laboratories raise science achievement.	Heyneman and Loxley 1983
School feeding programs	Thailand	Malnutrition lowers student achievement.	Fuller and Chantavanish 1976
Teacher experience	India, Iran, Malaysia (secondary)	Teachers with longer experience improve student achievement.	Beebout 1972; Heyneman and Loxley 1983
	Malaysia (primary)	Ditto.	Haron 1977
	Indonesia	No evidence that teacher experience is associated with student achievement.	Sembiring et al. 1981
Preservice teacher training	India	Teachers' years of schooling raise student achievement.	Comber and Keeves 1973; Heyneman and Loxley 1983

Study	Economy	Findings	Source
	Thailand, India, Iran	Teachers' years of post-secondary instruction lead to higher student performance.	Beebout 1972
	Malaysia (primary)	Ditto.	Haron 1977
	Indonesia (secondary)	Teachers' years of schooling do not affect student achievement.	Sembiring et al. 1981
In-service teacher training	Indonesia	Upgrading the skills of teachers leads to higher student achievement.	Sembiring and Livingstone 1981
Length of instruction	India, Thailand	More hours or days of instruction increase student achievement.	Heyneman and Loxley 1983
Homework	India, Thailand	No evidence that homework raises student achievement.	Comber and Keeves 1973
High teacher expectation	Hong Kong, China; Thailand	Teachers who expect high achievement raise student performance.	Fuller and Chantavanish 1976; Rowe et al. 1966
Teacher's time spent on class	India, Iran	More hours spent preparing for class raises student achievement.	Heyneman and Loxley 1983
	Thailand	No evidence that class preparation leads to higher student achievement.	Heyneman and Loxley 1983
Active teaching and learning	Indonesia (primary)	Students participating in active learning perform better than students without active learning.	Tangyong 1989
Principal salary	Indonesia (secondary)	Higher salaries attract stronger principals, improve the instructional programs, and raise achievement.	Sembiring and Livingstone 1981
Number of class shifts	Malaysia (secondary)	More than one shift of classes each day strains the effectiveness of resources and lowers achievement.	Beebout 1972
Student boarding	Malaysia	Living in school does not ensure that student achievement will be raised.	Beebout 1972
Student repetition	Thailand	Holding low-achieving students at a grade level will boost academic performance.	Fuller and Chantavanish 1976
Vocational curriculum	Indonesia, Philippines, Thailand	Vocational curriculum is negatively associated with an effective labor force and earnings.	Clark 1983; Psacharopoulos 1973
In-plant vocational training	Korea, Rep. of	In-plant training is more cost effective.	Lee 1985
Preprimary schooling	Thailand (primary)	Third graders who attended preprimary schools performed better in math and Thai language than did children who had no preprimary experience.	Raudenbush 1991
Status of parents	Nepal	Parents' socioeconomic status significantly determines school access of children.	Shrestha et al. 1986
Gender differences	Indonesia, Malaysia	Both girls and boys demonstrate favorable attitude toward math and possess equivalent problem-solving skills.	Swetz et al. 1991

Source: Consolidated by Muhammad, H. 1998.

Table 12: Dimensions of Effective Schooling

<i>Dimensions</i>	<i>Core elements</i>	<i>Facilitating elements</i>
Leadership	<ul style="list-style-type: none"> • Positive climate and overall atmosphere • School and classroom site management and decision making • Strong leadership • Goal-focused activities toward clear, attainable, and relevant objectives • Planned and coordinated curriculum • School-wide staff development • Consistency of school values 	<ul style="list-style-type: none"> • Shared consensus on values and goals • Long-range planning and coordination • Stability and continuity of key staff • District-level support for school improvement
Efficacy	<ul style="list-style-type: none"> • High and positive achievement expectation with a constant press for excellence • Visible rewards for academic excellence and growth • Cooperative activity and group interaction in the classroom • Total staff involvement with school improvement • Autonomy and flexibility to implement adaptive practices • Appropriate levels of difficulty for learning tasks • Teacher empathy, rapport, and personal interaction with students 	<ul style="list-style-type: none"> • Emphasis on homework and study • Positive accountability acceptance of responsibility for learning outcomes • Strategies to avoid nonpromotion of students • De-emphasis of strict ability grouping • Interaction with more accomplished peers • Sense of school community • Parental involvement and support
Efficiency	<ul style="list-style-type: none"> • Effective use of instructional time: amount and intensity of engagement in school learning • Orderly and disciplined school and classroom environment • Continuous diagnosis, evaluation, and feedback • Intellectually challenging teaching • Well-structured classroom activities • Instruction guided by content coverage • School-wide emphasis on basic and higher-order skills • Pupil acceptance of school norms 	<ul style="list-style-type: none"> • Positive teacher models • Opportunities for individualized work • Number and variety of opportunity to learn • School-wide recognition of academic success

In addition to the lack of consistency in research findings and the impreciseness of the dimensions of effectiveness, one difficulty in suggesting strategies for improvements in instruction is that in much important learning there may be a lack of linear order. That is, the usual interpretation of increases in learning being directly associated with time on task, and the usual fixed sequence of teaching suggested in lesson plans, for example, may not be relevant to an approach to progressive, constructive, interactive learning. Again, the level of current insight into the complexities of teaching and learning suggests that the best strategy lies in experimentation, careful monitoring, and feedback.

Unfortunately, in practice none of these is guaranteed to work. Teachers who do not receive merit pay may respond not by trying harder but rather by reducing their effort. And, paying premium salaries to mathematics and science teachers may make other teachers angry, frustrated, and bitter. Further, teachers apparently would rather be unemployed in urban areas than work in certain remote regions (Murnane and Cohen 1986).

As a second example, the importance of strong school management to teaching, learning, and effective schools is well established. Yet experiments in site-based management often do not produce significant change in teaching and learning. Visible changes are not always welcomed by neighboring or competing schools, and leadership over time requires multiple advocates. The lesson is that school-level efforts at reform are fragile, and may not survive if not reinforced by community or regional support.

There is potentially an important role for national standards to play in improving teaching and learning. National standards with sufficient supporting resources for teacher familiarization and training can have a powerful impact on national education quality. They are effective, however, only to the extent that they are integrated with curriculum, textbooks, and the continuing professional development of teachers. Sustaining such integrated reforms may require changes in school management and in how schools relate to families and communities. If agreement can be reached on standards for student achievement and their assessment, and if the standards are made a priority in schools all over the country, then the groundwork is laid for systemic change.

The lack of compelling research findings, and the often contradictory evidence culled from experience, stresses the need for caution. However, the potential for improving the teaching-learning process is not as bleak as the inconsistencies in research and complexities of practice may suggest. Research and critical examination of practice do offer insights sufficient to initiate small- and larger-scale interventions viewed as experiments. Research on school effects and effective schools offers significant insights that could become part of in-service training programs for teachers and principals or for district or school cluster-level experiments. Strategies to improve teaching and learning are likely to include:

- improving school management;
- increasing learning materials and instructional time;
- upgrading subject matter knowledge and pedagogic skills; and
- encouraging parental and community involvement in developing a supportive learning environment.

Additional characteristics of effective teaching and learning might involve establishing high expectations for students and, at all levels of schooling, including explicit attempts to integrate work knowledge and skills into the curriculum.

Research and experience indicate that much remains to be learned about the contents of the black box. This lack of knowledge stresses the importance of experimentation with new curricula and new delivery mechanisms. One

problem is that the poorest countries and poorest education systems, which arguably need innovations and cost-effective teaching and learning the most, have the least capital to invest for such purposes. More insight needs to be acquired by examining cases of successes and failures at the community and school level (Chapman 2002). Why, for example, in some communities is there decline in demand for schooling? Why do some communities reject existing schools? What unwanted outcomes do parents fear?

Policies, Issues, and Trends by Subsystem

Well described, largely in the documents produced by agencies involved in international assistance such as the World Bank and ADB, is a convergence of opinions on appropriate general priorities and broad strategies for education in support of economic growth and social equity. The recommended policy directions, although not without controversy, tend to emphasize:

- universal basic education;
- privatization and public-private partnerships, particularly in secondary, higher, and vocational/technical education;
- special attention to girls' and women's education;
- decentralization, or at least the transfer of some of the activities of education planning and reform from the center to lower echelons of government;
- teacher and administrator professionalization; and
- the search for multiple sources and channels for the financing of education.

Embedded within, and cutting across these priority recommendations are pervasive policy and operational concerns with:

- systemic, organizational, and classroom-level improvements in education quality;
- the promotion of equity in supply and delivery of education for all children and youth;
- increasing managerial effectiveness, and raising institutional capabilities at all levels of education systems; and
- developing and effectively utilizing multiple and new sources of financing.

Although the general rationale for the new policies and practices is clear and often persuasive, the precise nature of necessary reforms is often less clear. Recommended policies and priorities for education are often sketched in only general terms, with necessary supporting environmental conditions only partly considered; the constraints on implementation and utilization of new programs are rarely examined in depth. A major task for policymakers, planners, researchers, and international agencies is to unbundle these broad

strategies and give them meaning within particular contexts. In this process of clarification, specification, and implementation of actions, at issue is the role of international agencies.

Preprimary Education

A substantial body of research suggests that preprimary and early childhood education can have a strong, positive influence on success in subsequent schooling. Such education may be particularly effective in reducing subsequent primary school dropout rates among the poor. Preprimary education in DMCs is largely private, often delivered in a highly informal manner, and susceptible to economic conditions. Group 6 countries reflect this, where the transition to a market economy has had very negative effects on preprimary education.

A number of cases of intersectoral cooperation among DMCs include components of preprimary and early childhood education. One successful case is reported from the Philippines (Box 2).

Basic Education

The nearly universal priority status given to basic education is based on a belief that all children, irrespective of whether they continue in schooling or enter the world of work, need literacy, numeracy, and citizenship skills. As employment moves from agriculture to industry, and the population from rural to urban areas, basic education gains in importance. As enrollment rates approach 100 percent, priorities move further from access to quality. Decentralization impacts especially on basic education since this subsector is most likely to come under local responsibility. The uncertainty of quality of local leadership, the fragility of funding, the search for cost-effective quality, changing managerial roles at all levels, and the incompleteness of information for decisions may combine to constrain local education development.

Primary or basic education, because of its crucial function within the education system and contributions to economic growth, is given highest priority by major international agencies. All of the educationally less developed DMCs appear to accept this priority. High-quality basic schooling lays the foundation for further academic or vocational education, contributes basic competencies to the labor force, and improves the ability to learn. In turn, these factors contribute to productivity both in the household and in the market. One dominant view is that vocational and technical education and training are most effective when they follow a sound general education and are job related.

This view also suggests that a strong background in primary and secondary education provides individuals with a bigger chance of obtaining and profiting by in-service training.

Two major questions, however, concern what is meant by basic education and how relevant is the form in which it is delivered. If "basic" implies the fundamental knowledge and skills necessary in a changing economy and society, then as technological change and the means of production become more sophisticated, people need different and more advanced "basic" skills.

Box 2: Integrated Early Education and Development – The Philippines

One program which demonstrates collaboration among parents, teachers, and local government in planning and improving education service delivery is the Naga Early Education and Development (NEED) program, in the Philippines. The program addresses three concerns of Naga City:

- The devolution of Department of Social Welfare and Development (DSWD) functions to local government units pursuant to the Local Government Code;
- The increasing demand for better day care services by the local populace, which was triggered by the emergence of costly and mostly inaccessible privately owned preschool centers; and
- The evident need for quality services for the often-neglected handicapped sectors.

The NEED program has several innovative features. First, it has a strong partnership between program initiators and partners. Second, it has enhanced capabilities of local programs that guaranteed better access to quality education, impelled greater parental participation in early education, and bolstered the government's Moral Recovery Program by targeting the very young. Third, its focus on the handicapped created awareness of the plight of the neglected disabled sector of society, and provided a means for the mainstreaming of handicapped children. Finally, the program can easily be replicated in other government units.

The NEED program has the following components: (i) Survey for Early Detection of Developmental and Congenital Anomalies, (ii) Montessori System, (iii) School for Early Education and Development, (iv) HELP Learning Center, and (v) Special Education Program. The program starts with the enumeration of children with and without disabilities. Placement is either with the special education center and HELP Learning Centers which cater to special children or the School for Early Education and Development or the Montessori System which serves children without disabilities. The NEED program "programs" the child for admission into the formal elementary system.

The program caters to the 27 sitios of Naga with 60 barangay Montessori-type day care centers. It serves children aged 3-5 years regardless of their socioeconomic status or their mental and physical condition. The program has 72 staff, among whom 55 are part-time volunteers, 10 are full-time permanent employees, and six are co-terminus officers.

The cost is shared by the local government unit which provides a monthly honorarium of P800 per teacher, the barangay council which supplements the local government unit honoraria and provides center facilities, and parents who donate a voluntary amount monthly.

Source: Manugue et al. 1997.

Likewise, to participate fully in a changing civil society, higher communication and analytical skills are needed. Further, basic education, whether at the primary or secondary level, typically teaches numeracy and literacy abstracted from their use. Schooling makes a sharp division between

knowledge (knowing what) and practice (knowing how and when), and the culture of the school contrasts with the culture of the work environment. The separation of the “theory” as offered in basic education and practice from application in the real world raises questions about both the meaningfulness of instruction and the relevance to the external environment. These observations suggest that there is room for experimentation with alternative approaches to delivery of basic skills and understandings.

Junior Secondary Education

Junior secondary education is already a part of basic education in several DMCs, and is projected to be an integral part of basic education within 15 years in several more. Extending compulsory or universal education to nine years is a landmark decision in the development of education systems. It suggests an education commitment equivalent to many industrialized and modernized societies throughout the world. However, among DMCs such a redefinition of basic education has not necessarily altered the curriculum or instructional patterns of either primary or junior secondary schools. The major challenges to planners and policymakers are to integrate junior secondary education into an articulated basic education as necessary, maintain its integration with upper levels of education, and provide options for the range of needs for a diverse student population. The need for the content of basic education to be responsive to its context is illustrated by the changing skills and knowledge needed as agriculture shifts from a low to high technology base. Table 13 suggests that the minimum learning requirements for participation in the agriculture sector are quite different as the sector increases its productivity through technology and planning. Could existing basic education programs meet the challenge of Level D (see Table 13)?

Senior Secondary Education

The major issue at the senior secondary level relates to the appropriate curriculum mix between general and specific skills. At this level, education becomes increasingly specialized; many DMCs have had a continuing debate over the appropriate extent of its vocationalization. Providing an academic curriculum is the least expensive approach, and in many countries appears to offer equal or better employment opportunities than existing vocational tracks. As an alternative to skills-oriented programs, a new curriculum innovation, called technology education, is being experimented with internationally and is a subject of discussion in East and Southeast Asian countries. Technology education is a synthetic course or program which seeks to develop understanding of applied science and mathematics in the context of technological changes. This approach is cheaper and requires less equipment than pure vocational programs.

The demand for secondary schooling depends on the objectives attributed to this level of schooling by parents and students, the behavior of the labor market, and the financial capability of parents. Rapidly expanding

Table 13: Four Basic Stages of Agricultural Productivity and their Learning Requirements

<i>Agricultural levels</i>	<i>Former entrepreneurs' technology level</i>	<i>Agricultural inputs</i>	<i>Minimum learning requirements</i>
Level A	Traditional farming techniques passed from parent to child.	Local varieties of seeds and implements.	Addition and subtraction – not necessarily acquired through formal education.
Level B	Intermediate technology.	Small quantities of fertilizer.	Addition, subtraction, division, and rudimentary literacy.
Level C	Fully improved technology.	High-yielding varieties: proven seeds, rate of application of seed, fertilizer, and pest control per acre.	Multiplication, long division, and other more complex mathematical procedures; reading and writing abilities, and rudimentary knowledge of chemistry and biology.
Level D	Full irrigation-based farming.	All above inputs: tubewell access during the off-season, and water rates per acre.	Mathematics, independent written communication, high reading comprehension, ability to research unfamiliar words and concepts; elementary chemistry, biology, physics; and regular access to information from print and electronic sources.

Source: Heyneman 1997.

enrollments often outstrip the number of new jobs being created. However, the substantial cost of senior secondary schools simply prices this level of education out of reach for many poor. Demand is also reduced because certain types of industry seek young unskilled workers for menial jobs.

Faced with increasing output of junior secondary education and an emerging demand for upper secondary education, countries are beginning to look for alternative avenues for post-basic education. In the short-term future, one strand of senior secondary education will remain focused on academic preparation for higher education. In addition to an academic program, experimentation may be expected with a wide variety of vocational schooling and training arrangements that allow transferability and easy entrance and exit. The general assumption among researchers and policymakers appears to be that academic schooling is most effective for learning of more general conceptual and cultural knowledge. The workplace apparently is most effective for work-related knowledge (cognitive models of tasks and devices) and work-related skills (procedural, social, cultural).

Tertiary Education

The next decade will likely bring expansion of tertiary education in DMCs, increased privatization, increased differentiation within higher education systems, and more attention to the quality of instruction and research. The

direction of policies in higher education is toward development of more competitive and productive institutions supported by one or more public or private sources, with increasing autonomy in determining the composition of the student body and curriculum. This direction of policy does not necessarily eliminate the need for appropriate government regulatory frameworks, accreditation, and public subsidies.

In order to attain increased flexibility and efficiency in meeting the social demands and education needs of the economy, policymakers in higher education will seek:

- more efficient use of public funds;
- increasing reliance on students' families for financing a high proportion of costs;
- increased fees in public institutions;
- linkage between public support and measures of productivity; and
- direct profit-making activities by universities and higher technical institutions, often in collaboration with private industry.

Considering these funding adjustments, a basic equity question will need to be addressed: Does shifting the financial burden to students, as implied by cost sharing, in fact decrease equity in the delivery of higher education? Does this, in turn, contribute to increasing the education gap between the richest and poorest citizens?

Implementation of major changes toward institutional autonomy, self-governance, and market orientation will be difficult for several reasons. First, there is a tradition for faculty and staff to be perceived as civil servants with implied employment constraints. Second, in socialist and former socialist states, higher education was developed essentially as a model of specialized, usually mono-disciplinary universities. And third, moving control to the private sector or to nongovernment management boards may be difficult because it decreases the role of the state in enrollment and the curriculum.