

Chapter Six Education for a Globalized World

We have argued at several places throughout this text that one of the profound dilemmas of contemporary globalization is that the pace and unpredictability of change have resulted in a world “out of balance.” The globalized world is one of contradictions in which sometimes within the same countries—China, India and Indonesia could be examples—we find many social, cultural and economic practices that have existed for centuries, while other parts of the society are rushing headlong into the 21st century, propelled by the science and technology that are engines of constant change.

Nowhere are these contradictions more evident than in education. In the rural areas of many countries, there simply are no schools and children go entirely without organized schooling. In yet other places, schools are rudimentary at best. Elsewhere, and sometimes in the urban centers of these same countries, schools and tertiary education link students to a rapidly emerging linked knowledge community of scholars, researchers and students. It is the unevenness of it all that renders the issue so daunting and complex for educators and policy makers seeking to address education issues.

This chapter is organized into four parts.

1. *Changing paradigms.* We examine the idea of paradigms and trace them back to their political-economic underpinnings. We associate schooling as understood within the industrial paradigm and outline elements of emergent paradigms in the growing knowledge economy.
2. *The call for reform throughout education.* We link this to the tensions between the older, dominant paradigm and emergent paradigms, noting reform elements common to many countries.
3. *The issue of access.* The dynamics of globalization are radically changing who lives where, and who does what in rapidly changing economies. We link these globalization changes to efforts to ensure access to education.
4. *The issue of global linkage of education in the knowledge economy.* One way to understand globalization is through its information and knowledge pathways. How does education function and how is it changing as a globalized knowledge pathway? These questions link to issues of learning and relevance. In a rapidly changing world of the Internet and instantaneous communications is the relevance of learning as understood changing?

Part One: Education paradigms

Seeing the world in terms of *paradigms* allows us to examine ways in which knowledge is constructed in the broadest ways to organize our thinking. The idea

of paradigms has been most famously used to discuss the ways in which “scientific revolutions” have come to be understood. The Newtonian revolution, named after the English mathematician Sir Isaac Newton (1643-1727) gave rise to the dominant western science of the 17-19th centuries, based on the laws of motion that allowed for predication and explanation of the observable world at higher levels than that of other scientific systems that preceded Newton (e.g., Chinese, Greek, Indian, and Arabic). Viewing the world in this way gave rise to a whole range of scientific disciplines including physics, chemistry, and astronomy and to a lesser extent biology. By the end of the 19th century, however, the limitations to the Newtonian paradigm became obvious to thinkers examining both extremes of the “natural” world, the very small and the very large. Max Plank (1858-1947) and Niels Bohr (1865-1962) working independently developed insights into the nature of matter that led to what is now known as *quantum physics*, a view that challenges many of the assumptions of the Newtonian paradigm, especially at the subatomic level. At the other end of the physics scale, Albert Einstein (1879-1955) developed a set of understandings concerning time, space, and matter that led to what is commonly known as the *theory of relativity*, a view of the world that suggests that reality is knowable only relationally by taking account of the perspective of particular observers. These later views have been responsible for whole new branches of science including modern biology, communications sciences, nanoscience, subparticle physics, and modern astronomy. Together, it is argued, they constitute a new paradigm of science. Similarly, it can be argued that ideas of science developed out of Chinese or Indian cosmologies constitute different paradigms of science from either those of Newton or Einstein (Green, 1999).

The French thinker Edgar Morin suggests that in general paradigmatic thinking involves the following:

All knowledge operates through the selection of meaningful data and the rejection of data that are not meaningful. It does so by separating (distinguishing or disjointing) and unifying (associating, identifying), and by organizing into hierarchies (the primary, the secondary) and centralizing (around a core of master notions). These operations, which use logic, are in reality driven by "supra-logical" principles of organization of thought, or *paradigms*: the hidden principles that govern our perception of things and of the world, without our being conscious of them (Morin, 2006).

Paradigms exist for science and other constructions of knowledge, one of which is education itself. In seeking to understand how paradigms both guide and constrain us, it may be useful to think of paradigms as principles of thought and practice often hidden or unconscious that govern our perceptions and actions in the world, and that involve us at all times in the process of selecting meaningful data and rejecting others that we hold not to be so meaningful.

The argument in this text is that within education the dominant paradigm is beginning to weaken. The ability to conduct society's business, to develop and provide education relevant to the world that is being produced by contemporary globalization, is increasingly limited by the conventional and accepted ways of conducting education.

Before proceeding, we wish to examine this way of looking at the world, which is in part hidden and unconscious, and yet in other ways glimpsed, yet fully institutionalized in the ways that we think, speak and act out our educational thoughts, plans and actions. The major argument of the chapter is that education as currently constructed does not work very well to prepare people for the contemporary world. In countries throughout the world, developed and developing included, calls are raised to "reform" education. These calls arise from the shared perception that education as "done" is falling short of what are held to be its purposes and tasks. The dominant educational paradigm no longer meets major social needs, much in the ways that the Newtonian paradigm failed to explain important parts of the natural world that increasingly became available to inquiry during the 19th century.

Educational paradigms arise out of what have come to be the dominant ways of thinking about politics and economics in societies. Our argument here is that one can point to three basic paradigms: the *classical* paradigm, the *industrial* paradigm (currently the dominant—although weakening—paradigm) and the emergent *post-industrial* or *knowledge society* paradigm. It is this emergent way of thinking and organizing the world toward which we are moving, and it this paradigm that is beginning to shape a world to which we are just beginning to make accommodation.

Both the classical and industrial paradigms have many variations, articulated through different cultural structures and arrangements. What we are terming the classical paradigm emerged out of societies that were hierarchical and dominated by elites that produced cultural knowledge that was conserved and transmitted through some set of social structures. (The dominant knowledge group was often a form of priesthood or sacred class, since much classical knowledge has a religious basis.) We use the term classical to note that all dominant cultures over periods of time cull and refine a set of knowledge elements based on discovery, cogitation, disciplined inquiry, revelation etc. and seek to maintain this body of knowledge over time. There are no doubt better terms for this, but the notion suffices to cover such diverse historical experiences as the Greek classical tradition, the Roman, the consolidation and preservation of knowledge by the Church of Rome and its Orthodox equivalents, the Arabic Enlightenment, the Chinese and Japanese classical traditions, etc. The point to be made is that overwhelmingly they were agriculturally based social hierarchies and the primary function of education was to ensure cultural knowledge within the socialization of ruling elites and their closely held subordinate classes, which in specialized ways included the military.

Industrialism changed this structure significantly, acknowledging that the transitional period lasted almost 250 years, from the stirrings of organized science in the early 17th century to the explosive growth of industrialization in the 19th century. Across a wide range of countries, agriculturally based wealth hierarchies in time became subordinated to those based on commerce and industrial production. A commercial wealth class, often reflecting capitalist modes of acquisition and accumulation, arose supplanting that based on land wealth. The right to exercise social and economic power based on social status was gradually replaced by that based on achievement and wealth acquisition. Middle classes, including professional middle classes emerged, as did industrial working classes. From the 18th century on, in part because of these macro shifts in the political economy, political democracy (liberal democracy) entered the stage to meet the demand for more broadly representing social groups other than the landed class in social power structures.

Education changed in concert with these transformations in the political economy. In the west scientific inquiry arose out of an extended contest with the Church and its presumptive monopoly over education and “correct knowledge.” Paradigmatically, inquiry based on empirical investigation and the application of reason replaced revelation and doctrine as the primary knowledge tools. The Renaissance and the Enlightenment recovered and reinterpreted elements of other classical traditions, primarily the Greek and Arabic, and integrated them into the new framework of inquiry. During the transitional 17th and 18th centuries, education was still experienced by only a small part of the population, and continued to serve its class reproduction functions, altered as we have indicated, by openings to the new scientific and philosophic intelligencia arising out of the turmoil of changed class relationships.

Mass democratic education made its appearance in the 19th century, leading in some countries to mass compulsory education intended to create educated work forces, including most importantly, the professional classes—scientists and engineers—required to build the factories and organizations of the emergent industrial society and its all important cities. It was not until the last quarter of the 19th century that the education process began to “take off” and develop the characteristics that now extend in numerous ways throughout the world, diffused in part by the mechanisms of European colonialism. Extension of educational needs into the working class, an explosion of urbanization, and the infusion of society with technology changed the way people lived, worked, recreated, earned money, spent money, sought shelter and food etc. The invention of urban lighting and the building of electrical utility networks changed the way people occupied the day and night. The internal combustion engine and the creation of roads, along with railroads, shrank time and space, making the transportation of goods and people, in relative terms, cheap and easy (Johnson, 1991).

Education was fashioned to meet the needs of this changing society. In the United States, for example, it was not until the creation of The Johns Hopkins University and the University of Chicago during this critical period—the latter 19th century—that the modern university made its American appearance. Up to that time the most famous American universities—Harvard, Yale, Columbia, Princeton, the University of Pennsylvania—were still operating in the classical “reproduction of elites” model. The full embrace of creating science and technology based education for the middle classes and the rapidly emergent professional classes was accomplished to a significant extent by the “new” state universities, themselves a creation of the federal government land grant legislation of the Civil War period.

One can enumerate the characteristics of the education paradigm that emerged from this industrial political economy and its projected needs. In doing so, it is important to acknowledge the tensions placed on the paradigm by inventions and discoveries that in reality span the 20th century, such as relativity and quantum theory. While these notions have radically affected knowledge, as have the more recent revolutions in computing, mathematics and biological science, these novel ways of seeing the world have not much affected the institutions of education themselves, which continue to be organized in terms of the earlier industrial paradigm.

The reference point for the comparison between social organization for the industrial and postindustrial paradigms should be the core institutions of the production and consumption and political processes themselves, inasmuch as it is these that are meant to be served by education.

On the production side, as noted in previous chapters, the locus of manufacturing production has moved from the older industrial countries with their relatively high wage labor forces to the newer industrial, developing countries with their less expensive labor forces. Capital has driven this shift and followed it, developing entirely new mechanisms of production and its control in the process.ⁱ The most significant of these is the shift from the older industrial modes of assembly line mass production (which resulted in huge amounts of capital being tied up in plant, equipment, production materials and inventories)—what is often called the *Fordist* mode of production after Henry Ford whose company did so much to perfect the techniques of mass production—to *flexible or just in time* production (Grieder, 1997).

The goal in flexible production is to use as efficiently as possible the combinations of capital and production by tailoring production to consumption tastes, and limiting inventories as much as possible by producing to meet only predictable demand in available markets.ⁱⁱ In this process, outsourcing is a major element as producing firms of end products seek to invest as little of their own capital as they can in the actual ownership and operation of manufacture.

Modern computer and communication systems tie production closely to demand on the one side, and on the other allow modern advertising to invent consumer demand that can then be satisfied by the creation of the desired product. The consumption side of the equation is thus brought into line with the production side. We have become so accustomed to this model of production and consumption in the past twenty years that it is difficult to appreciate how radical the difference is with earlier models. Classical microeconomics, for example, for the whole of the 20th century assumed demand to be largely “given,” a result of the vast complexity of preferences that a society produces and that producers of goods seek to satisfy. The American economist John Kenneth Galbraith was one of the first to recognize that one of the primary features of modern capitalism is its ability to create the very demands that its firms then seek to satisfy (Galbraith, 1973). Globalization’s contribution to this process is to extend it throughout the globe, in large part through the activities and reach of the modern media and advertising firms that were among the earliest transnational corporations.

Table 6-1 Elements of the Industrial and Post-Industrial Paradigms

Elements of the Industrial Paradigm-Fordism	Elements of the Post-Industrial Paradigm-Flexible Production
Standardization and universalization—one size fits all, and a “unit” for every person	“Boutique adaptation”—design products for those who need and want them—tailor to individual needs
Linear, predictive models of cause and effect	Non-linear, probabilistic models of association and consequence
Education based on the acquisition of relatively constant elements of agreed-upon “knowledge	Education addressed to rapidly increasing knowledge quotients (knowledge explosion) and
Relatively rigid professional hierarchies	Flexible associations of capabilities brought together in networks
Ideology of formal education=progress and development	World viewed as more complex—formal education one element among many; world a more contingent place
Concentrate productive capacity in vertically integrated hierarchies	Production distributed throughout world to maximize economies in factors of production
Primacy of manufacturing capital	Primacy of finance capital

While the world moves rapidly toward one organized around a political economy of flexible production exhibiting many of the characteristics detailed in Table 6-1, educational systems on the whole are still organized around the values and routines of an industrial political economy. This is the major source of the “disconnect” between contemporary education and the economies that educational system exist ostensibly in large part to serve. It is also the source of the clamor for reform in education heard in countries throughout the world.

Part Two: Contemporary schooling derived from the dominant paradigm is, as John Hawkins argues, recognizable everywhere. . . we all know what schooling is and is about. Tyack and Cuban have termed this *the grammar of schooling* (Tyack and Cuban, 1995). In western developed nations, particularly in the United States where public education (schooling) has been under pressure to reform for many years, the complaints have a commonality among them. One list compiled from the literature by Hawkins identifies these problematic features of schooling:

- An authoritarian relationship is the core of the teacher-learner interaction;
- Teachers are insecure due to poor pay and lack of training;
- Teaching methods benefit little from knowledge about cognitive psychology and child development;
- Teachers discourage discussion and questioning and adhere to textbooks;
- The main function of schooling is to select entrants to the next educational level;
- The selection is through a highly competitive examination system that requires the reproduction of rote learning rather than critical thought; tracking becomes a permanent feature;
- The main activities of the formal school system are directed toward preparing pupils for these examinations;
- The student and parents are preoccupied with certificate-status rather than with the essence of what is taught (Hawkins, 2007; Tuqan 1983; Oakes 1985).

This list could easily be expanded and we encourage the reader to do so from his/her own country experiences. Globalization, as we will explore further in the next two sections, has a complex relationship to both the spread of the common schooling grammar and to reform efforts. As Carnoy writes:

It is true that education appears to have changed little at the classroom level in most countries . . . teaching methods and national curricula remain largely intact. Even one of the most important educational reforms associated with globalization, the decentralization of educational administration and finance, seems to have little or no effect on educational delivery in classrooms, despite its implementation. (Carnoy, 2002)

Hawkins (2007) adds: “Globalization assures the spread of the dominant paradigm while at the same time altering it to suit the needs of the globalized economy.”

That this is so results in large part from the great inequalities present in the global system. As the current global system developed in the years following World War II and as colonialism gave way to the establishment of new independent nations, the imperial/colonial international economy progressively broke apart. Taking its place was a complex of different economic trajectories that were conveniently summed up as “First World, Second World, and Third

World” economies. The first world, or developed economies, were in reality very different, ranging from those rebuilding from the devastation of war (e.g., Germany, Japan, Great Britain, France) to those whose relationship to economic “mother countries” was being restructured (e.g., Canada, Australia, New Zealand).

The so-called Second World made up largely of socialist economies and dominated by the Soviet Union also comprised great differences in economic capacity and development, with the Soviet Union among the most developed and countries such as Albania barely beginning along the road to industrial development. What was blithely referred to as the “Third World” represented enormous differences in economic structure and capacity. Some countries, such as Argentina, were mainly agricultural and raw material producers for the manufacturing countries; others such as Brazil and India were complex mixtures of relatively advanced industrial centers and vast and much less advanced agricultural regions. Economists in the post war decades accurately employed the term “uneven” development to characterize these vast differences. Further complicating this world in the “development decades” was the reality of revolution in countries such as China and Viet Nam as socialist regimes sought to launch their societies past the constraints of colonial or postfeudal control.

In the development decades education came to be viewed not merely as a “development tool” but as *the development tool* (Hawkins, 2006). At the core of every development proposal in all three “worlds” irrespective of their empirical state of development, education lay at the core of the strategy. For developed countries, education was the capacity that would leverage societies toward the achievement of abundance, technological sophistication, and prosperity; for developing countries, education was the single most important “thing” that would make people of those countries more “like them”, meaning developed economies and societies. Given the structure of global uneven development these elements have persisted, ensuring as we note citing Hawkins and Carnoy above, both the spread of the dominant paradigm through globalization and the tailoring of the dominant paradigm to meet the needs of an increasingly globalized world.

Reform movements within countries emerge largely out of these two basic tensions. They are either calls for schools to “modernize” more quickly and effectively to link the whole of society with its more rapidly developing cores, or such movements are—especially within developed countries—efforts to align education with the workplace needs of post-industrial societies. (Throughout education policy debates, this has come to be referred to as the “alignment” issue.) Reform efforts are expressed for basic as well as tertiary education, with calls being raised in many countries for schools and universities to reform and align curricula to meet common societal needs.

As globalization has spread throughout the world carrying with it the common package of neoliberal elements that we have discussed in preceding chapters,

these elements have entered educational reform debates as well, especially as they have focused on aspects of school administration. Schooling and higher education are expensive to support on a society-wide basis, often constituting the largest single element of national or subnational unit budgets (e.g., states, provinces, municipalities). Efforts to meet neoliberal political agendas by reducing national and sub-unit budgets (and thereby reducing taxes and “leaving” more capital within the private sector) have focused in equal amounts on “outcomes”—seeking to gain assurances that schools and universities meet workplace needsⁱⁱⁱ—and “administrative efficiency.” This latter discourse has borrowed liberally from the *managerial revolution*, the movement within capitalist countries, spurred by global corporations to move them from organizational forms appropriate to industrial organization into those more appropriate to postindustrial/global corporate structures (Cuban 2004).^{iv} As Hawkins points out, from these reform efforts globalization has imposed a new language on education policy makers, including elements such as:

- Privatization
- Marketization
- Corporatization
- Strategic planning
- Decentralization
- Branding
- Accountability
- Assessment (Hawkins, 2006).

A review of the literature on education reform in the U.S. suggests a *weak-case* and a *strong-case* explanation for why reforms have proved so difficult to accomplish. The weak case stresses issues of insufficient resources required to make essential changes; the relative political power of teachers in resisting change, especially when they are organized into unions; the historic structural conservatism of education as a social enterprise; and cultural resistances to change. The accountability elements cited immediately above are good indicators of efforts to provide reform within this weak case framework (Goodlad, 2004).

The strong-case model emphasizes the extent to which the dominant paradigm is embedded in deeper social, political and economic structures such as those that constitute the political economy. This view argues that the forces that are operating to change the political economy are fundamental and have far greater implications for society than those represented by contemporary reform. Reform fails, it is argued, in part because it necessarily lags behind the rapid social changes being wrought by the complex combination of globalization/postindustrialism and the emergent knowledge/information/network society.

The weak-case model sees reform as a problem to be solved by marshalling appropriate resources targeted at specific elements of the educational endeavor.

The strong-case approach views contemporary education as a predicament in which the tensions of keeping up with the changes taking place in the broader society are more or less constant. There is no definitive solution to educational reform, only approaches that satisfy some goals and needs but not others. The weak-case approach to reform seeks to achieve reform within the basic assumptions and practices of the dominant paradigm; the strong-case approach recognizes that the dominant paradigm is no longer sufficient to meet social needs and seeks to identify elements of new paradigmatic approaches to educational needs. Clearly, the approach taken in this chapter seeks to illuminate aspects of the strong case.

Tables 6-2, 6-3 and 6-4 illustrate some of the features of schooling under the dominant paradigm, typical actions taken to reform educational practices, and some elements that may more directly link efforts to forge a new paradigm for education more consistent with the underlying political economic structures of flexible production. These elements have been drawn from the literature on school reform in the United States. Examples are provided for schooling, teacher education and higher education. The reader is encouraged to develop a similar exercise for his/her own country.

Table 6-2 School Paradigm Elements

Old Paradigm—Schools	Reforms—Schools	Emergent Paradigm--Schools
Standardization of experiences	Greater parental involvement	Class content recognizes values of youth culture
Common curriculum	Charter and magnet schools with focused subject matter	Team learning
Compulsory state education	State support of private schools	Mixed aged instruction
Hierarchical organization	Closer community ties	Student-focused learning: guide on the side replaces sage on the stage as teacher model
Assessment through standardized testing	Student tracking and advanced placement	Shift from memorization to critical thinking
Most instruction is by talking; most talking is by teachers	Internet based learning	Recognition and acceptance of networks as both “naturally occurring” and “purposeful”
Technology is an add-on to curricula and pedagogy	Focused “schools within schools”	Central emphasis on learning to learn model of education
Domination of linear	Early childhood	Acceptance of differential

learning models and curriculum sequences	education	intelligence learning models
Schooling by age grades	Mixing age groups	Mixed age instruction

Table 6-3 Teacher Training Paradigm Elements

Old Paradigm Teacher Training	Reforms-Teacher Training	Emergent Paradigm—Teacher Training
Gender bias—more women in lower education grades	Link teachers to mentor teachers after college training	Team teaching with common student cohorts
Poor salaries and poor prospects for advancement	Provide greater mobility and incentives	De-centering the teacher from authority to guide/learning coach
Gaps between school needs and education supplied by “teachers colleges”	More international content	Deep diversity as a curriculum structure including differential intelligence models
Student teacher apprentice in existing classrooms—reproducing problems	Expansion of internship programs to link classrooms to workplace relevance	Center teacher in critical thinking/problem solving classroom interactions
Model of teacher as curriculum monitor	Diversity training and cross cultural education	Mainstream technology education components

Table 6-4 Paradigm Elements in Higher Education

Old Paradigm-Higher Education	Reform—Higher Education	Emergent Paradigm—Higher Education
Research privileged over teaching	New colleges and schools within universities dedicated to learning	Specialized start up institutions addressed to “new problems”
National hierarchy of institutions	Increased international education	Interdisciplinary teaching and research
Highly professionalized professoriate	Impose private sector management tools	Abandon the 4-year BA model in favor of targeted achievement
Organized by academic disciplines	Develop explicit productivity standards for faculty	Significant instruction and experience outside university settings
Often isolated from “society”, yet highly responsive to research agenda from political	Outreach activities to surrounding communities	Routine curriculum shuffling to promote adaptation to social change

economic institutions		
Competence=grades and units completed	Competence=meeting empirical outcome measures	Learning assessed through qualitative and quantitative measures

Another effect of globalization for education has been its inclusion into the General Agreement on Trade and Services (GATS) that treats education as another commodity in the global economy. Education services are included in the current negotiation round that began under WTO in 2000. Trade in higher education services including exchange of international students is a billion dollar industry and growing rapidly as the demand for higher and adult education, especially in the professions and in non-traditional delivery modes increases. Jane Knight points out that as demand expands, the capacity of the public sector in many countries is insufficient to meet it. This condition supports groups seeking to expand the education marketplace through privatization (Knight, 2002).

In countries such as India, Thailand and China private institutions are rapidly emerging to meet several aspects of market demand. In these settings private institutions often enjoy the advantages of less government regulation, the ability to select their own students and faculty, and the ability to tailor curricula to meet perceived needs, either in enhancing the student's progress to the next education level, or by providing an education package of particular interest to business organizations. Recent studies suggest that in many countries the deep structural problems of public education result in a wholesale abandonment of it for private education. Stories abound in countries like India and Nigeria where parents pass up free public education of low quality to seek more effective private education. In India, for example, daily teacher absenteeism can average 25 percent across the system, a situation which when compounded with vastly overcrowded classrooms devastates education performance. In these situations, private sector solutions are eagerly sought by parents as options (Rodriguez, 2006).

Part Three: Access and Equity

As discussed in the previous section, the structural inequalities of the postwar development decades have been intensified by globalization. Some countries of the world are seeking to put in place the basic elements of schooling and tertiary education common to the more developed world. Some of the largest countries of the world, most notably India, Indonesia and China, are textbook cases of within-country uneven development as the advanced cities, critical nodes in the global economy, provide examples of the most up-to-date education, while depressed rural areas often struggle to gain the most rudimentary educational capacity.

Population growth, migration and other structural factors such as civil unrest and disease impose enormous burdens on governments seeking to provide universal education. Education for All (EFA), the United Nations effort to mount a world-wide campaign to assure educational opportunity has monitored world progress in educational access since 1990 when representatives from 155 countries met in Jomtien, Thailand “to universalize primary education and massively reduce illiteracy before the end of the decade” (UNESCO 2005). The meeting of the World Education Forum in Dakar in 2000 created six goals around which national and international education was to be directed. ^v At the time of the Dakar conference 104 million children were without schooling of which 57percent were girls, and two-thirds of the 860 million adults without literacy were women. By 2005 EFA expected that gender disparities in primary and secondary education would be eliminated and that by 2015 overall gender disparities would be eliminated throughout education (UNESCO 2005-1).

Of the many equity issues involved in global education that of gender constitutes the largest and most persistent instance of discrimination. EFA data indicate that whereas enrollment for girls is increasing (measured by gross intake for grade one), largely as a result of the abolition or reduction in school fees and charges, genuine declines in recent years have occurred in Algeria, the Congo, the Islamic Republic of Iran, Oman, Saudi Arabia, the Sudan, Thailand and the United Republic of Tanzania. The overall data on enrollment, however, reveal a mixed picture with enrollment of girls on the rise along with total gross enrollment, which rose from 596 million in 1990 to 648 million in 2000 (an overall increase of 8.7percent). Much of this increase occurred in Sub-Saharan Africa (38 percent relative increase), with significant increases in South and West Asia (19 percent) and the Arab states (17percent.) On the other side of the ledger, in the latter two regions almost 20 percent of the age group remains out of school (UNESCO, 2005).

Efforts to address these issues of access and equity in providing education emphasize the daunting tasks for the countries involved. Many of the factors that contribute to the pressures on education arise outside the control of the nation-state. As we have argued throughout this text, the single greatest motivator to migration is the realignment of work and employment opportunity as the global economy shapes local labor markets. Movements of population are swift and impact countries that are unprepared for the burden of accommodating new migrants and their educational needs. Local communities are often unable or unwilling to provide adequate schooling for new migrants, no matter what their value may be to the overall national economy. Further complications arise when migrations pose particular language and learning requirements based on religion and/or custom. Civil unrest throughout immigrant populations in France in the summer of 2005 revealed the toxic social combination of high unemployment among immigrant youth and tensions within schools between national standards and customs and the needs and predispositions of immigrant communities. This scenario has repeated itself in one way or another in many other European

countries as well as the United States and Latin America. Asian versions of the drama are continuing to unfold as this region experiences some of the most numerically significant levels of migration.

Other globalization dynamics enter the equation as well. Throughout much of the globalizing world child labor is a major component of the labor quotient used to produce global goods, ranging from globally-traded commodity crops such as cocoa, coffee and tea to the sex industry. In Africa efforts are underway to undermine what is termed “chocolate slavery” in which children are bound to the cocoa fields, especially in the Ivory Coast and Ghana for little or no wages. Even in the developed countries the exploitation of child labor in the fast food industry (where in Britain instances have been found of forcing children to work 16 hours a day) essentially cancels out efforts on the part of local authorities to assure that children have effective schooling available to them. Overall, however, most child labor is found in Asia where large numbers of children work long hours for pitiable wages and are denied the opportunity to attend school (BBC, 2002). The NGO community is currently engaged in a major effort to assist in the struggle for access to education.

Again, privatization is greatly influencing the kinds of education available throughout societies. India has witnessed a growth in the relative proportion of private school from less than a tenth since the early 1990s to over one quarter. James Tooley’s research in Indian slums indicates that under these circumstances as many as two-thirds of the children attend private schools, many of them unrecognized by government (Mallaby, 2006). At the university level, India already produces three times more engineering graduates than the United States at 200,000 graduates a year. Astonishingly, the enrolling cohort for engineering in 2005 was 450,000 in four-year courses, suggesting that this number could double by 2009. The demand for these education services is coming largely from fee-paying students pressuring private institutions to expand capacity. Sebastian Mallaby points out that in 2003 the Vellore Institute of Technology received 7,000 applications. In 2005 it received 44,000 (Mallaby, 2006). The rapid expansion of private sector capacity raises parallel issues of the quality of such institutions and the education they are providing.

These examples clearly indicate the complex dynamics of globalization on education, especially in the larger developing countries. On the one hand, government education bureaucracies tend to be sluggish and conservative in responding to rapid social change. The time horizon to render change within government settings is long and response is slow. The private sector by contrast is both relatively underdeveloped and unregulated. Stimulated by the heightened demand that comes from rapid urbanization and rising incomes for a significant minority of the population, and given the large population numbers involved, demand is translated to private institutions, which quickly rise to meet it. The result has been an explosion of these sectors, often led by the entrance into the

market of foreign global education entities accompanied by distance education delivery systems.

This is clearly the first stage of this rapid process of seeking to provide greater access through private sector expansion. If history is a guide, this period of rapid expansion will be followed by one of consolidation in which issues of consistency of quality are raised, especially concerning the wide varieties of offerings being provided by private sector education entrepreneurs.

Part Four: Education in the Knowledge/Network Society

The movement from an industrial society based education paradigm to a knowledge society based paradigm is tied at virtually every point to the ways in which globalization creates needs for labor. Inequalities in the distribution of the skills required by a knowledge economy have been famously framed as the “digital gap,” recognition that access to the tools of the knowledge society are available to some, but not others and that the longer one remains outside the digital community, the larger that gap grows.

Additionally, although this aspect is given much less attention, increased global interdependence in a knowledge economy also creates a whole texture of novel relations and understandings about society and culture, and about key relationships such as those between citizen and state.

The digitalization of society that we refer to as the knowledge based paradigm appears to be following a hard, if not ultimately inexorable logic in which neo-liberal maximization will affect policies—public and private—millions of times over to determine the environments and opportunities facing people when they seek to work and live out these new social roles. Because education is in large part about preparing people for work, it is the processes of globalization that will increasingly frame and condition what people should be educated for. And, to repeat a portion of the point made in the previous section, the criteria of “education for work” are increasingly being established outside the realm of the local, pressing this external logic on the traditional instruments of education: local government, local school boards, and local social networks.

As globalization proceeds throughout the world and as societies succumb to becoming globally “competitive,” the act of joining the competition contains many and varied imperatives. One of these, referred to immediately above, is succumbing to the logic of profit maximization through the use of child labor. Another is submitting to the deregulatory impulses of neoliberalism that seek to strip away many of the regulatory protections of workers. Yet another is the increasing prevalence of English as the language of global communication. Another, on the other side of the coin, is the increased pressure on many societies, emphasized in UNESCO programs, to adopt global norms of gender equity in education, making education available to girls at levels comparable to

that for boys. Education systems that refuse to join the competitive struggle eschew essential forms of knowledge capital required to succeed in this environment. This struggle defines in key instances the tension between the cosmopolitan world of the global and the increasingly “alternative” world of the local. These alternative worlds are often themselves couched in religious or cultural codes, which become intensified as people seek a basis for resisting the intrusions of globalization and global consumption. Education is often the contested terrain for the playing out of this tension.

We have discussed in a previous chapter some of the ways in which information technology is rapidly changing the world. Many of the tensions present in contemporary education have at their root the slippage between what children learn within society at large and what they learn and are rewarded for at school. One burden of the dominant paradigm is the belief in standardized curricula and the notion that all students should be taught the same things. Despite the fact that we know this is rarely the case—children from more affluent settings are always taught different things and in different ways than those from poorer settings—as societies, we cling to the belief in a standardized curriculum as the best way to promote equality within a world of manifest differences. The dominant education paradigm derives its power in part from the promise that all children will obtain from their educational experience (public supplemented by private) at least the minimal measure of literacy and numeracy required to gain success in society. On this base are built the selection processes of secondary and tertiary education that provide more complex combinations of skills that society requires for its progress toward development. The organization of society to produce this press toward uniformity contributes both to the enormous cost of education and to its essential conservatism. Any system organized on the premise of providing each individual a significant measure of the “same thing” is bound to be conservative and slow to change—any change involves implementation throughout all the complex levels and corners of “The System.”

The knowledge/network society challenges these assumptions in any number of ways. Examination of contemporary society tells us overwhelmingly that change is the order of the day—in fashion, in what is known, in what is believed, in the “products” that we hold to be necessary for a satisfactory existence. Our information/knowledge society is based in part on a set of processes that spur innovation. To date education has often been a reluctant participant in these processes, but the evidence seems to be increasingly on the side of change winning out. We see increasing evidence that educational institutions responding to these dynamics of change are—in most societies—being rewarded. It is to them that members of social, economic, and political elites send their children in an effort to ensure that they will “know the world” into which they are moving and from this knowledge succeed. One particularly interesting and important example is that of Tsinghua University in Beijing, China, currently held to be the leading Chinese University. As one of the universities designed by the central government to “become world class,” Tsinghua has fundamentally revised its

undergraduate curriculum to focus students on the changing nature of disciplinary boundaries, to encourage critical thinking, and to get the most out of their faculty. The University has established three new undergraduate seminar programs, all taught with about 15 students and one professor. One is a freshman seminar focused on critical thinking; a second is a senior seminar focused on doing and interpreting research; and a third is organized around multi- or inter-disciplinary themes. Moves of this sort can be seen in many systems of higher education, as can a revisiting of general education to make it more relevant in a world of rapid change, and the promotion of problem-based learning (Shi, 2009).

Increasingly we also see various kinds of flight from education systems as constituted. Huge numbers of young people leave school because they fail to see the relevance between school and what they perceive to be skills required of the world. Significant numbers of young people leave one form of school—often the highly bureaucratized or ineffective schools of the public sector—for others that are deemed more relevant. A poignant example is that of so-called *wild goose fathers* in Korea, a phenomenon so wide-spread as to have this semi-clinical name in which when a child is in early adolescence a mother and one or more children will leave Korea for an educational environment believed to be superior for the education of the children, leaving the father alone to work and supply the income necessary to support this project. These families are making an extraordinary investment in creating the social capital they believe results from advantageous positioning of their children in the globalized knowledge world.

The increasing tensions placed on education to respond to the challenges of the knowledge society will be one of the dominant social dramas over at least the next two decades and larger groups in society will become organized around changes believed to result in greater alignment between education and the emergent knowledge society.

For Further Study:

1. One major attempt to change the existing classroom situation and its disciplines is problem-based learning. A review of one approach can be found at: Major, Claire H. Guest Editor's Note: Implementing Problem-Based Learning in Undergraduate Education: A Message from the Guest Editor, *The Journal of General Education*.
2. Videos that display approaches to problem based learning at available at TILT, for example, "Problem Based Learning for Technology," available at: <http://video.google.com/videosearch?q=problem+based+learning&hl=en&sitesearch=#>.

See also: “Problem based learning for thinking,” available at:
<http://video.google.com/videoplay?docid=-647497821457298622&q=problem%20based%20learning&hl=en>.

3. TED has developed one of its “themes” around teaching and learning, entitled “How We Learn.” You may wish to review this entire set of presentations, which are available at: <http://www.ted.com/themes/list>.

One presentation that is particularly provocative, given the types of materials touched on in this chapter, is Ken Robinson’s: “Do schools kill creativity?” available at:
http://www.ted.com/index.php/talks/ken_robinson_says_schools_kill_creativity.html

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Footnotes:

ⁱ To a large extent it has been the little noticed field of "production engineering" that made possible the massive shift in manufacturing from the older industrial nations to developing ones, especially in the decades of the 1960s-1980s. The engineering task was to relocate complex and sophisticated manufacturing tasks from the high labor costs countries to the lower labor costs countries. The latter often lacked well educated working class populations, so engineers had to re-imagine and design equipment that could be run by workers with few educational skills, but possessed of "quick minds and nimble fingers" as one industrial executive remarked at the time. This, for example, describes the migration of the computer chip industry to Asia during these decades. The revolutionary awareness for business elites during this period is that this process could be accomplished by by-passing the need to sink vast amounts of social capital into the education system in order to produce an appropriately educated workforce. (Neubauer, 2000.)

ⁱⁱ This is how housing is now built in American markets. The contractor designs housing, advertises it to potential buyers, takes deposits for desired units and then commits to the actual construction. Many automobile companies custom build autos the same way for consumers, seeking to keep inventories of their many models to a minimum, sufficient to satisfy only those buyers who seek immediate gratification of on-site purchase.

ⁱⁱⁱ One of the first efforts to initiate this discourse in the United States was a publication supported by the well-known Carnegie Foundation, *Nation at Risk* (1980) that sought to create a national debate over making schools relevant to workplace needs. This in turn sparked a good deal of complementary reform focused effort, perhaps the most significant of which was John Goodlad's exhaustive study of US schooling in the 1980's. The reader is referred to both of these as historically relevant texts in the global reform debate. (Goodlad, 2004)

^{iv} Examining the school reform movement in the United States since the 1980's Larry Cuban finds several sets of assumptions held by business leaders who have driven much of the movement for reform. Citing the business roundtable in the farm state of Iowa, Cuban notes these three assumptions: "The first is that the schools were terribly flawed. The second was that teachers, administrators, and support staff in the system were the obstacles to fixing it. The third is that if we would just run schools like businesses, they would work." Cuban points out that other key assumptions lie behind this view of the schools including (1) the belief that strong economic growth and increased competitiveness in global markets depend on a highly skilled workforce; (2)

that Public schools are largely responsible for equipping the population with the knowledge and skills required by an information based workplace; (3) that all public schools are doing a poor job preparing students for college and the workplace and among them urban schools do the worst job of all; (4) Schools are like businesses and should be run on business principles to produce better achievement on standardized tests; which (5) are the appropriate measure for success—higher test scores in school mean better performance in college and the workplace. (Cuban, 2004, pp. 26-7.)

^v The six EFA goals are:

- 1) Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children
- 2 Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to, and complete, free and compulsory primary education of good quality.
- 3 Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programs.
- 4 Achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.
- 5 Eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality.
- 6 Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills (UNESCO, 2005).