2 Education for All, but for What?

Kai-ming Cheng

PREAMBLE: QUESTIONS

"Education for all" has been a world mission since the 1960s. There were, in the early 1960s, visionary targets of achieving universal nine-year education in twenty years.[1] The failure in achieving such goals prompted the Jomtien meeting in 1990, which revitalized the international community's attention to the education of our next generation, which is so dear to the general advancement of humankind.

The general situation of Education for All in the early twenty-first century is rather different from what it was in the 1960s and even 1990. While for many countries in the less developed world, enrollment and access to basic education are still the major concern, there is also a legitimate concern about what kind of basic education should be provided. The concern in many countries, developed and developing, has gone beyond universal attendance. Parents used to ask, "When will my child have a place in the school?" Now that their children are in schools, they ask, "What has the school done to my child?" This underpins the general sentiments in many jurisdictions where people decide to reform for *quality education*.

This poses a deeper question: What quality of education should we aspire to? In a society that has undergone fundamental changes, what should happen to our education, and basic education in particular? Should we improve our education by doing more and better of what we have been doing? Or should we rethink the fundamentals of education and reform for a different notion of education? Even in societies that have yet to face fundamental developmental changes, global challenges are imminent, and one has to ask: Is the basic education that we provide indeed preparing our young people for a different future, and for an ever-changing future?

Once we started asking these questions, we faced two further questions. First, what in the real world would have implications for the development of education? Second, given the sweeping process of globalization, to what

extent are these implications commonly shared by all countries, including those in the least developed world?

I do not pretend that this small chapter could answer all these questions. However, I hope the observations in this chapter might yield some meaningful hints.

In the following, I will start by looking at the workplace as a window on society. The changes in the workplace have created rather different expectations of individuals, and hence of education. I conclude that education should undergo some fundamental revisions so that we might fulfill our responsibility of preparing our young people for their future.

THE PYRAMIDS

Perhaps I should clarify from the outset that the word *workplace* is chosen on purpose. I am not referring to the job-market or employment, which belong to the realm of economic analyses. What I am trying to achieve is a kind of anthropological understanding of human lives in work. I have not chosen to use the word *organization,* because as it will soon become clear, there are people who do not work in organizations.

Let me start with the case of Hong Kong. In at least two ways, Hong Kong is atypical. It is an economy with almost no agricultural sector. Even its manufacturing sector operates outside Hong Kong.[2] In 2007, the service sector contributed to 91 percent of Hong Kong's economic growth (Census and Statistics Department, Hong Kong, 2007). It is a small city of around seven million people, with limited flow of people across its borders. However, these characteristics have also made Hong Kong almost an ideal case to study what a place would be like where the economy is largely post-industrial. The choice of the descriptor "post-industrial" is again deliberate. I have refrained from using "knowledge society" because that would require a rather solid definition.

In 2007, there were more than 305,000 registered companies in Hong Kong. Of these companies, 99.3 percent were organizations with less than one hundred people. They are what are called SMEs, or small and medium enterprises. This may not be totally unexpected, but 94.0 percent of all the companies in Hong Kong in the same year had fewer than twenty people, and 86.5 percent had fewer than ten people (Census and Statistics Department, Hong Kong, 2008). The Hong Kong case would be seen as less atypical if we compare it with the United States, which is a much larger society. Of all the business enterprises in the U.S., in 2002, 96 percent employed fewer than one hundred people, and 86 percent employed fewer than twenty (U.S. Census Bureau, 2001, p. 483).

However, one would be surprised to find that even in Shanghai, which still has a substantial component of manufacturing in its economic sectors, 99.7 percent of the registered enterprises were classified as SMEs. Their employees constitute 86.8 percent of all employees in the municipality (Coordinating Office for the Promotion of Small and Medium Enterprises, Shanghai, 2005).

The implications are tremendous. This is no longer the kind of society that we were familiar with in the industrial era. It is not the kind of society that was there even fifteen years ago.

A typical industrial society is a pyramid. Let us consider a typical workplace organization in a manufacturing factory. It would be a pyramid. In a garment factory in Swaziland,[3] there are 3,000 workers at the front-end production lines. These are so-called "raw laborers" or "unskilled workers" who were expected to perform simple, routine, repetitive and manual tasks. Such tasks are dictated by the overall production plan, which fully exploits the principles of *division of labor*, so that each worker is required to perform a simple action, as just a small part of the complex production process. In so doing, these workers are to follow strictly prescribed procedures, and are governed by rules and regulations in a rigorous structure. These three thousand workers are organized in production lines each served by fifty workers. For the approximately one hundred production lines, there are one hundred supervisors with a decent understanding of the production procedures and some skills of supervision. In order to manage these one hundred supervisors, there is a layer of middle managers who possess higher level management skills, or technicians who are equipped with higher level expertise. Additional layers of technical and management personnel undertake higher levels of supervision and management, and so forth, until, at the apex of the pyramid, there is the Manager and a few leading engineers who form the mastermind of the entire production process in the factory. These are the few people who decide what should happen at the lower levels of the factory (i.e., design) and who make sure that they do happen according to the design (i.e., management). This was the case in the majority of factories and in other large commercial firms in the industrial era.

Because of the pyramidal structure of most workplaces in an industrial society, *society* as a whole was a pyramid. The largest majority in society were the front-line workers. They were the blue-collars who form the "cheap labor" and take care of the minute manual tasks. Then there were the middle managers and mid-level technicians who formed layers of the administration. There were only a few chief engineers or managing directors who stayed at the top of society. It was a pyramid of manpower.

The pyramid was also a pyramid of knowledge. The chief engineer had to be highly educated, and was supposed to be the one who had

the greatest amount of knowledge and highest wisdom in the entire factory. The managers and technicians at the lower levels possessed less knowledge, and their expected education decreased at lower levels of the pyramid. The front-line or grass-roots workers were manual workers who were not supposed to exercise their brains. The best worker at the front-end production lines followed instructions strictly. They were therefore also called "operatives," "unskilled laborers," or simply "raw laborers," just to indicate the non-necessity of knowledge or skills.

Because people in industrial society were typically ranked according to their formal qualifications and credentials, the education system was also a pyramid. The largest majority of the populace did not have any education beyond basic education, or simply were illiterate. Moving up the pyramid, there were layers known as *craftsmen* who had received training in vocational school or had undergone apprenticeship; *technicians* who had acquired a dose of technical education in technical institutes or some kind of post-secondary education; *senior technicians* who received sub-degree diplomas; and finally *engineers* with higher education degrees, or further training attained through membership in a professional body.

The education systems in most countries still reflect the industrial era, and are pyramids.

In sum, in a typical industrial society:

- There were fine divisions of labor, an array of departments, layers of administration, well-defined structure and hierarchy of qualifications, which were best summarized in Max Weber's (1947) notion of a *bureaucracy* in the neutral sense of the term.
- People were classified also as layers of manpower. They were classified vertically as operatives, craftsmen, technicians and engineers,[4] for example in a manufacturing set-up.
- Unless they were front-line manual laborers, people worked in specific occupations, in specific jobs and on specific tasks. They were classified horizontally by occupation. They worked with specialized expertise in specialized departments. In other words, people owned distinct occupational identities.
- People worked separately according to specific job descriptions and pre-set procedures, under well-defined rules and regulations specific to their jobs. Such procedures, rules and regulations were designed from the top and handed down to workers at lower levels.
- Echoing the pyramids in the workplace, education systems were designed in a manner that ranked people according to their levels of knowledge and skills, and labeled people with different occupational identities. Below is a schematic representation of the workplace–education match.

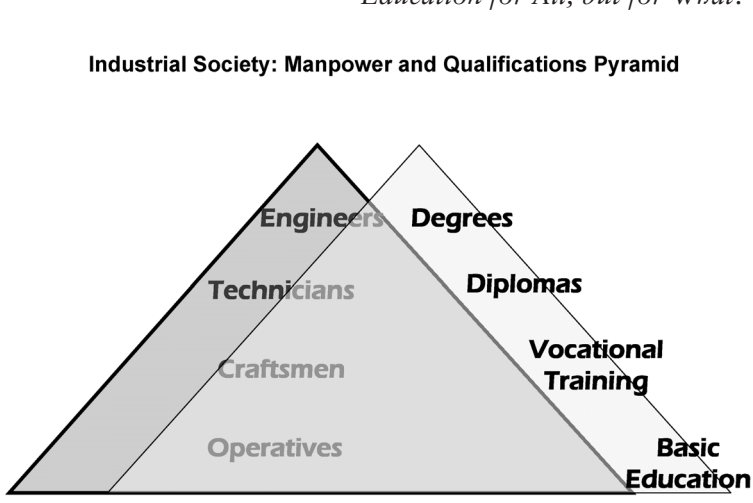

Figure 2.1 Industrial society: manpower and qualification pyramids.

For the discussions that follow, it is essential to reiterate that the pyramidal manpower structure was matched by the education system, which was, and still is, also a pyramid. The education system screens people, allowing only a percentage to move on to upper levels of the system. At each transition, the system exits a certain percentage of people (called graduates). They are supposed to possess the different amounts or levels of knowledge that match the expectations of such knowledge at the workplace.

THE PROJECT-TEAMS

When one looks at societies where most of the work units are small, such as Hong Kong, Shanghai and the United States, the situation is different. A small organization of nine people, for example, could afford few layers and few departments. The division of labor is no longer the primary principle for organizing people in a small workplace.

In most of the small organizations I studied, people are assigned tasks according to the needs of clients, rather than according to the nature of the task. The size of the unit is only the tip of the iceberg. It is a symbol of the fundamental change in the nature of the workplace. People who work in small units face very different environments and expectations when compared with those who work in pyramidal organizations.

A member in a typical department in a large pyramidal industrial organization serves a special purpose. In a manufacturing factory, members in a department perform their specific responsibility, without necessarily knowing the whole picture of the final product. In a large commercial firm in

the industrial model, each department serves a special dimension of every transaction, but the department is not required to have the knowledge of the entire transaction.

In a post-industrial society, the organization of the workplace is typified by what is called a "project team" or, in other variations, a "taskforce," "production group," "client unit," "deal team" or "account team."[5] A project team works in ways that contrast those in an industrial organization, even if the project team is part of a large organization such as a consulting firm or investment bank with a few hundred members.

A project team typically works exclusively on one single project. It faces one client or caters to one product. This is fundamentally different from a department in an industrial organization, where each department faces many clients and each client has to face many departments. A conventional hospital set-up, for example, follows an industrial style where each patient has to face many departments to complete one visit: registration, temperature and blood pressure tests, inspection by the clinical doctor, injection or other minor operations, pharmacy, cashier, appointment reservation and so forth. In a typical investment bank or consulting firm operation, which is often the most representative of a post-industrial organization, one project team takes care of one client, providing total solutions to the client. Such solutions are meant to be holistic and comprehensive. The client does not have to turn to any other part of the bank to receive services.

A crucial element is that such project teams are at the front line, but they do not work according to any design handed down from above. The project team directly works with the client. It faces the requests and problems. It has to provide answers and solutions, and hence it has to design and innovate. If we walk into an insurance firm, most likely we find members discussing in small groups. They are agents who bring home clients' requirements, and they are creating "customized products," as they would say. The front-line workers in a post-industrial organization are no longer routine, low-skill, manual laborers. They have to possess the knowledge, expertise and mentality that belonged to middle managers or even leaders in a typical pyramidal organization in the industrial era.

A project team is also temporary. It ends when the project is complete. A member of such an organization often serves more than one project team as required by circumstances. Most likely, the role of each member in the project team is vague and could vary over time. What is treasured in the teamwork is the collaboration among members and integration of expertise. Members work as a generic team, rather than as specialists confined to certain knowledge and skills.

Such characteristics of the workplace are not specific to large organizations. The very small enterprises are basically themselves project teams. The only difference is perhaps that the same team (i.e., the organization) will be handling different projects.

It would be too sweeping to say that all organizations are working in the same mode, but it is safe to say that the trend is unmistakable and irreversible. It is also safe to say that quite a few are working in "matrices" that allow departments and project teams to co-exist. They could be regarded as intermediate between bureaucracy and post-industrial structures.

Implicit in the preceding discussions is the change in the economy or in the mode of production. In the industrial era, products and services used to aim at the large-scale market with large quantity. Products and services now, in a post-industrial economy, are customized and tailor-made for clients, and are provided more directly to the users. Attention focuses now on quality, and producers face a market of diversity. Hence, the overall trend is to have many more designs of products, but a smaller quantity is produced in each. "Selling less of more" is perhaps a succinct description of the mode of productions in a post-industrial society (Anderson, 2006). Translated into the work force, there is an increasing need for designers rather than simple producers, and there is a gradual disappearance of middle-level administrators, but more front-line managers. Accordingly, there is also a diminishing layer of "blue collar" operative manual workers.

The picture is not complete if we ignore the expanding sector of freelancers. Even now, it is not always easy to have statistics on freelancers in a society. Freelancers work as independent individuals. They may either register themselves as a one-person firm, may be employed by multiple organizations at one time, or may be classified as unemployed and do not appear on an economic census. An estimate was that in 2003, there were 220,000 free-lancers in Hong Kong,[6] comparing with a total of 2,200,000 employees in all the registered companies in that year. Freelancers could be seen as further developments in the move from large bureaucracies to small work units. Freelancers could be seen as one-person "project teams" that are free from assigned procedures, rules and regulations, yet provide effective and innovative total solutions to their clients.

Such trends are not limited to metropolitan cities or to the most developed cities. In the various places where I made a presentation of this theme, there are enthusiastic echoes that similar trends exist, though in different degrees. The trend is spreading very rapidly from the most urban and international centers to other, less developed regions. In China, which could be seen as a microcosm of the world, the spread of the economy from the more to the less developed regions has also brought changes in the workplace. Places which have not experienced such changes will be affected in the near future. Since the cause of the change lies with the mode of production, such changes affect all economies, even those at the early stages of industrialization, in an era of globalization. For example, the factories in Swaziland, mentioned earlier, face changes in the demand of the consumers in North America and may disappear in a few years time because of change in the import quota system.

INDIVIDUALS

Changes in the workplace strongly affect individuals' career lives. In an industrial society, individuals were typically employed by an organization because of their credentials. Credentials provided the employers a convenient assessment of the individuals' level of knowledge as reflected by academic study. Such credentials have lifelong currency. Most likely, such individuals are appointed to large organizations and to specific departments according to their specializations. The individuals are expected to move up the hierarchy when they grow older and become more experienced in the organization. When they enter the organization, they could legitimately expect promotion through the ranks, with continuous elevated ranks and statuses, accompanied by escalating incomes. As such, they develop loyalties to the organization and commitment to their respective specialization. They could then also safely look forward to retirement at their advanced ages with well-defined benefits.

This is no longer the reality. In a post-industrial society, individuals are appointed increasingly because of their personal attributes rather than their credentials. Although good credentials are still necessary and beneficial, they are no longer sufficient.

In a leading multinational investment bank in Hong Kong that I studied, the Managing Director is himself a political scientist. The person in charge of human resources is a graduate of English Literature. The Managing Director explained to me why their recruitment did not aim at trained accountants. "For us, the required level of expertise could be attained in a matter of four weeks." This was confirmed in their recruitment plans every summer. "What we are interested in are young people who have had some aims to strive for, have experienced some difficulties and competition, and eventually succeeded. We are looking for 'winning personalities.'"[7]

A retired senior partner of Deloitte and Touche in Hong Kong, in a newspaper interview,[8] commented that what are essential for the auditing profession are integrity and human skills. The accounting skills could be learned after recruitment. This was confirmed by a Physics graduate, who joined a leading multinational accounting firm, undertook training, and obtained his Public Accountant license in six months.[9]

We may well argue that there are other specialized knowledge and skills that are not attainable in four weeks or six months, but the important message is that learning on the job is a general expectation in the workplace.

In other words, the workplace is interested in what the recruits could learn in the future in the workplace, rather than what they have learned in the past in educational institutions. It expects their members to learn on-the-job, on-demand and just-in-time, because whatever is learned could soon become obsolete and is short-lived. The members should have the capacity and willingness to learn. The tasks in the workplace are so rapidly changing that individuals have to learn continuously in order to fulfill

their responsibilities. Knowledge in any specific area becomes renewed so quickly that whatever one has learned will soon have to be renewed.

New knowledge is also required because individuals' job situations change rapidly. A recent survey reveals that an average adult between eighteen and forty in the United States experiences 10.5 jobs (U.S. Department of Labor, 2006). A similar survey in the United Kingdom indicates that an average individual experiences thirteen jobs in a lifetime.[10]

The contemporary workplace undergoes constant reengineering, downsizing, de-layering, outsourcing, closures, mergers and acquisitions (Deal and Kennedy, 1999). It is no longer realistic for an individual to expect long-term appointment in any particular organization. There is decreasing room for organizational loyalty. Such loyalty could easily be overtaken by the disappearance of the organization because of closure, merger or acquisition. Even if individuals stay in the same organization, changes in the market, technology, client or partnership could require them to change their position, status and specialization. They have to learn to do new things in the same organization. However, what is also likely to happen is that the individuals have to leave the organization, very much against their own wills. Circumstances might require them to change their jobs, or even change their careers.

During such changes, individuals no longer can anticipate long-term continuity in their careers. They can no longer expect good planning of their career developments. Disruptions in career paths, fluctuations in incomes and lifestyles, and switches to new careers are commonplace in the contemporary world. It is not unusual for an individual to experience several careers in one's lifetime. It is also not unusual for an individual to work across occupations or work in areas with blurred career boundaries, multi-skilling or cross-skilling. Many more people are temporarily unemployed (or "between-jobs") or undertake early retirement,[11] willingly or unwillingly. It is increasingly difficult to maintain job stability, organization loyalty and occupational identity. In their place, waiting for our young people are personal insecurity and career uncertainty,[12] a future that is no longer predictable.

However, the challenges to individuals are not limited to their careers. What the workplace requires has also changed. A simple scan of surveys of employers' expectations or workplace requirements would agree with the list of attributes of preferred appointees in business organizations as well as NGOs:

- Ability to communicate effectively
- Ability to work as a team member
- Flexible human relations
- Preparedness to face changes and challenges
- Preparedness to solve problems
- Willingness to take risks

- Capacity in analysis and conceptualization
- Capacity and willingness to learn new things
- Ability to question, to query, to challenge and to innovate
- Willingness and capacity to assume personal responsibility
- Capacity for self-reflection and self-management

It may surprise educators that, with almost no exception, such lists do not include elements of the "subject matter" of the job. It would not be sensible to assume that such "subject matters" are not important. The workplace would not tolerate poor language skills, for example. There are knowledge and skills, such as those for clinical medical practices, that have to be learned before engaging in practice. Scientists, as another example, have to be equipped with profound knowledge in their respective disciplines before they could even be admitted to laboratories. In most jobs in the service industries, some kind of special knowledge is required, although much of such special knowledge could be learned on the job on demand. Perhaps it is not that such substantial knowledge is not necessary, but it is not the determining factor for success in the workplace. This is fully understandable when we look at the modes of activities in a contemporary workplace.

In a typical contemporary work unit, which I tried to delineate earlier in this chapter, human interactions have become more intensive than ever. Teamwork, collaboration, integration and partnership have replaced strict division of labor, prescribed procedures and rigid rules and regulations. Typical activities in the workplace are communications, presentations, brainstorming, demonstrations, negotiations, debates, lobbying, seminars, teleconferences, videoconferences, and retreats; all amount to human–human interactions. Technologies have also changed the format and intensity of interactions among people. Audio and video telecommunications through mobile telephones and the Internet are replacing written or printed documents and other formal paperwork. Moreover, with the workplace becoming more fluid, individuals now face various and varying teammates, clients, partners, social networks and employer–employee relations. This change is perhaps best reflected in the practice of 360-degree appraisal, where individual performances are no longer assessed by the bosses, but evaluated by all parties who are related to the specific individual in one way or another.

In such close human interactions, individual behaviors are less governed by bureaucratic and hierarchical requirements, but are more a reflection of the individuals' attitudes, values, emotions, ethics, principles and personalities. There is much more reliance on individuals' moral standards and value judgments in the workplace. Furthermore, because the outputs rather than processes are being monitored, individuals are expected to exercise their discretion most of the time, but are also expected to bear personal responsibility and "carry things through" as an individual undertaking.

Because of the loose nature of the work organizations, individuals are expected to be self-confident, and have to have a rather strong capacity for self-management and self-reflection.

There is no pretense that the flatter society would be more equal or fair, only that the disparity (in terms of status and income) is no longer a matter of organizational or manpower structure, neither is it determined by the amount of knowledge or experience one possesses at the time. It is a competition of a different nature, and the rule of the game changes over time and varies according to situations. As individuals are now less protected by their work organizations, they also have to be more capable of understanding the larger context in which they live and work, more autonomous in planning their future, and more conscious of protecting their own rights and their families.[13]

Because of the frequent changes in the products, clients and their own careers, individuals seldom do things that they have done before. Therefore they have to have a strong capacity to learn everywhere at all times, to avoid inertia, to question the conventions, to query the status quo, to "think outside the box" and to create and innovate almost every day.

It is perhaps necessary to say that the preceding discussions concentrate on the workplace, but people's cultural, social, political, religious and family lives are also facing unprecedented challenges in a post-industrial society.

UNDERSTANDING SCHOOLING

The preceding observations are just a brief scan of what is happening around us. Many of those observations are perhaps commonsense in the larger society. However, they should be more than enough as a starting point for renewing our understanding of education.

In most jurisdictions, apparently, most workplace expectations mentioned earlier are not the target goals of the education system. It is safe to assume that in almost all education systems, high examination scores are de facto the one major goal of school education, although there are always some lofty goals in theory. This is reflected not only in teachers' actual daily practice, but often in the emphasis of government policies. It is also almost taken for granted in many academic investigations, where examination scores are conveniently used as the proxy for education outcome or student achievements. As a matter of reality, in most systems, the largest portion of resources for education is used for classroom teaching of academic subjects.

It would be unfair to say that schools and universities do not care for a student's personal development, but it is fair to say that relatively few resources are allocated to non-academic matters. One should perhaps be sympathetic with educators, because they are under tremendous pressure to prepare young

people for the next stage of education, or for immediate employment. For example, a secondary school could not survive if its graduates were not admitted to good universities. In many parts of the world, a primary school is judged by the admission of its graduates to good secondary schools. Educators are left with little room to prepare young people for their longer-term future.

The picture becomes clearer when we understand that schooling as a national system was started in Europe in the mid-nineteenth century. It emerged as a necessity for many industrial societies. Cynics would condemn the schools as a system to sift and select human beings.[14] But even the most constructive interpretation regards schools as a place to transmit knowledge and skills, to train people's ability to work and fit them into the appropriate position in the manpower structure.[15]

The manpower approach to education, which prevailed over educational planning for almost three decades since the early 1960s, overtly assumes horizontal classification and vertical ranking of human beings in order to match the manpower structure in society. Although manpower planning is seldom a central theme now, most countries still practice manpower forecasting as a means of safe planning, and education is still supposed to play a crucial role to balance the supply and demand in manpower.

Human capital theories, based very much on rate-of-return analysis, assume that a hierarchy of incomes will match a hierarchy of abilities. Such abilities are assumed to be related to education. "Higher learning leads to higher earning," goes the dictum. Here, both learning and earning are supposed to be a *lifelong* phenomenon, where the benefit or return in the analysis refers to the added financial income due to the education credential obtained from formal education. Rate-of-return analysis could be a subject of continuing academic debate in the context of a post-industrial society.

However, when we look into the practice in education, we see that schools are very much the machinery for processing ("teaching") the massive number of students. Schools are large organizations, and they practice a division of labor. Teachers are subject specialists. Students are taught selected lumps of knowledge ("subjects"). All students are given more or less the same amount of knowledge (the "curriculum"), and they follow the same paths (moving through yearly "grades"). Each day, each specialist ("subject teacher") supplies the students with a dose of a particular subject at the specified time slot (according to the "time table"). The process is complete when all the required doses of knowledge are taught (according to the "syllabus") and the quality of acquisition of such doses (called "learning") is tested (in "examinations"). Teachers are virtual "quality controllers" of the process.

PARADIGM SHIFTS

Such a delineation of the school system might sound cynical. I wish I could argue against such an interpretation. In the following, I try to identify the

paradigms underlying the practice of education in our present school system, and I suggest that shifts in paradigms are necessary if we are to fulfill our responsibility for preparing our young people for their future.

The Paradigm of "Teaching"

The paradigm of teaching pertains to the understanding of learning. This is a matter of paradigm as well as a matter of knowledge and understanding. The following discussion is no stranger to educators who are familiar with the contemporary theories of human learning.[16]

What is learning? There is a general belief that learning is the transmission of knowledge from those who know to those who do not. Therefore, students do not "learn" unless they are taught. Education is about teaching. Good "learning" means absorbing as much as possible from teachers. Learning in this sense takes place only in institutions such as schools where teaching takes place.

Hence, it is for the teachers to decide wisely what students should learn. Every student can and should learn in the same manner. Students' brains are like containers of knowledge. Learning happens in individual brains by filling these containers. Learning is assessed by how much knowledge such containers have or are able to hold. Those who can hold more get higher scores and hence are better students.

There are also assumptions that learning is about what is known. It is not about creation. Learning is about understanding, which is separate from application and use of knowledge. Learning is basically about knowledge and skills that can be taught. Learning outside the curriculum is extra and optional, and learning beyond the campus is often seen as illegitimate and deserves no recognition.

However, it is now commonly agreed that learning is the active construction of knowledge by the learner. What happens in the learner's brain is due to the learner's interactions with the external world. Meaningful activities bring about the construction of meaningful knowledge, or meaningful learning. Education is therefore a matter of *learning experiences*. Learning experiences are useful when the activities are useful applications of the knowledge being constructed. This is reflected in the rather simplistic saying "learning by doing."

The corollaries of this notion of constructive learning include several dimensions, all very significant to education. All students can learn, but they learn differently. They learn from a whole spectrum of activities that they encounter every moment. Human beings also learn from peers. In this sense, teachers are senior co-learners. But teachers also have the responsibility of building a framework or "scaffolding" for students, so that students do not have to repeat their ancestors' learning.

If we believe that student learning is the core business of education, then the shift of paradigm in human learning should have tremendous implications for education.

The Paradigm of "Screening"

Implicit in the education system in the industrial era is the paradigm in education that "there are smart kids and dumb kids."[17] Some can learn; some cannot. Only smart kids deserve more education, and school helps control the gate to higher learning. Hence, education is providing society the noble service of classifying and ranking human beings.

This system is not consistent with the current understanding of learning. It is not supported by any theory in the entire literature about learning. The notion of intelligence quotient (IQ), for example, is a convenience that hinges upon the type of intelligence we measure.[18] If we accept Gardner's (1999) notion of multiple intelligences, then students should well be measured by multiple quotients that could better reflect their development in various intelligences. But if we accept that learning is not an accumulation of knowledge, then there are dimensions of learning that do not lend themselves to quantitative measurement.

However, the quantitative measurement of "learning" has been well supported by society in the industrial era. The manpower pyramid reflects a fine division of labor among the departments and layers, where human beings are classified according to occupational identity and ranked according to levels of education qualifications. Society needed a legitimate way to classify people and discriminate people by their ability, and education became the best candidate for that function. This is where credentials came into play. As some economists would argue, credentials provide a convenient signal for both individuals and employers to find appropriate matches in the job market (see Spence, 1973).

In the post-industrial society, it is doubtful that the possession of knowledge can remain the primary means for discriminating among human beings. This is partly because most tasks require knowledge and learning and there is no room for the less educated; it is also because the acquisition of knowledge, thanks to technology, is now so convenient that it no longer can be used as a means for discrimination.

Again using Hong Kong as an example, despite basically universal attendance in both primary and secondary schools, youth unemployment consistently stays high regardless of the fluctuations in the economy.[19] In 2002, 19 percent of fifteen- to nineteen-year-olds suffered from "double-disengagement": these young people were not able to study or to work (Commission on Youth, 2003). With a life expectancy of eighty-four years among females and eighty-one years among males, what will these people do in the next sixty years? It has become a major social problem. The case of Hong Kong invites a question: When education is massively sifting out those who are supposed to be of low ability, and when many of those losing out are not given an opportunity to survive, does the problem lie with the students or the system?

Indeed, many countries have seen a dramatic expansion of higher education in the past decade. Many societies, particularly in the urban centers, have

made it possible for every young person to have some kind of post-secondary education. According to Organisation for Economic Co-Operation and Development (OECD) figures, one third of youths were admitted into all types of tertiary education in 1996 (OECD, 1998, p. 174). In 1999, three years later, 40 percent of youths were admitted to Type A tertiary education (full-time degree-bearing programs; OECD, 2001, p. 148). In 2006, the Type A enrollment further rose to 56 percent, with another 16 percent in Type B places (sub-degree programs) (OECD, 2008, p. 58), hence a total of 72 percent in all types of higher education. East Asia provides a further example. In Korea, Taiwan and Japan, there is an oversupply of higher education places vis-à-vis secondary school graduates. In major cities such as Shanghai and Beijing, the enrollment ratios for higher education have exceeded 75 percent. Singapore is moving toward 80 percent, and Hong Kong has achieved 65 percent higher education enrollment. The admissions mechanisms to higher education are also evolving accordingly in these societies. If admissions to higher education are no longer highly selective, why should secondary schools be keen in screening their students?

It seems inevitable that educators have to accept that everybody can learn and should learn, for life. That shift in the paradigm would drive reforms in the curriculum, in assessment, and in the entire role of schools. Such reforms are emerging, but they are not widespread. Some are half-hearted. Nonetheless, the trend is unmistakable.

The Paradigm of "Specialization"

The preceding discussion also highlights the role of specialization. Educators commonly believe that human beings are prepared for their future only when they have acquired some occupational status. This has also developed into a belief that a higher level of learning should result in a higher degree of specialization.

On two counts, specialization in education is facing challenges. The first comes from the change in the workplace where, as is mentioned earlier, specialization is blurred because of the retreat from a strict division of labor. It is true that long-term specialist training is essential in occupations such as medical doctors, scientists and engineers. But there are many more others in which the specialist requirements are acquired either on the job or in a relatively short training program. Among a good percentage of graduates, there is a general "mismatch" between what students study and what they do after graduation. The frequent change of jobs and careers has also challenged the notion of specialist training, particularly at the undergraduate level.

The second challenge comes from within the education system. There is a general trend in higher education toward programs that either reduce the specialist elements or delay the specialization to a later stage.

A typical example of the former is the Washington Accord, where six Institutes of Engineers came together in 1989 and agreed, among other

things, to devote 30 percent of the undergraduate engineering program to non-engineering areas of study.[20] In some newly reorganized undergraduate journalism programs, only 30 percent are on journalism per se. The idea is to train journalists with a broad knowledge base.[21] This, of course, challenges the entire notion of a "major." In the United Kingdom, where the higher education system has been known for its specialized programs, there has been a call to install a two-year generic Foundations Degree followed by three-year Masters degree program.[22] Consistent with this trend are numerous efforts to introduce double degrees (where two disciplines merge at the undergraduate level),[23] to de-specialize entrance requirements[24] and to keep the first years of undergraduate study as general programs.[25]

The most significant example of delayed specialization is obviously the Bologna Process,[26] which calls for a unification of European higher education to follow a three-year generic undergraduate program, leaving specialization to the second and third degrees. This is already practiced in many countries.

The Paradigm of "Study"

The paradigm of "study" begins with the assumption that learning in education is the academic study of theories in classrooms, libraries and laboratories. It has developed to such an extent that academic study is taken as the proxy for student learning.

However, expectations in the workplace show that academic study is only one type of learning. Much of what is expected in the workplace is beyond what can be learned though academic study. First, what is learned in academic study is limited to the few subjects often dictated by the examination syllabuses. Second, because of the intensive human interactions in the workplace, there is a general expectation of good character and personality. There is the demand for good human relations and social competencies. There is also a renewed attention to attitudes, values, emotions, ethics and principles. These values are not acquired automatically from academic study. This has given rise in Western education systems to the call for values education, civic education, ethics education, tacit knowledge,[27] character education and social competence, beside the traditional emphasis on "moral education" among Asian societies.

In established universities, students are readily learning from a variety of experiences such as student organizations, internships, mentorships, fellowships, team sports, community services, volunteer work, music and arts activities, service learning and overseas exchange. In most cases, these activities are not part of the academic curriculum, and students most likely do not receive any credit for their involvement. Such experiences are seldom examinable, but are nonetheless important as part of the students' personal formation.

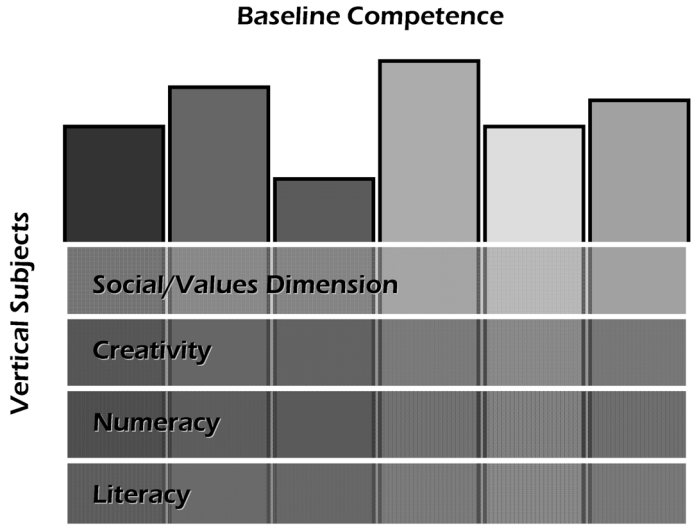

Figure 2.2 Baseline competence.

Most recently, in the realm of arts in education, it has been advocated that apart from literacy and numeracy, creativity should be included as one of the baseline competencies in basic education (UNESCO, 2006). This proposal opens up a very good framework to consider student learning in terms of baseline competencies, which are different from what could be called vertical subjects.

This reminds us of the UNESCO call for "learning to know, learning to do, learning to live together and learning to be" (Delors, et al., 1996). A comprehensive framework for learning is also presented in the OECD study of Key Competencies[28] as is reflected in Chapter 20 of this book. The OECD study raised three dimensions of key competencies in contemporary societies:

- Interacting in socially heterogeneous groups
- Acting autonomously
- Using tools purposively and interactively

These could be interpreted, if we use a Chinese education framework, as learning how to face people, learning to face oneself and learning to face practical tasks. It echoes very well the analysis of expectations in the post-industrial workplace. However, if we use this as a mirror and look at our school curricula, they are at best taking up only part of the third dimension, on using tools.

If we follow this argument, there are indeed many attributes in people that are important for human lives but are neglected in school, yet are

achievable during the school years. These include: optimism about life, passion about nature, commitment to society, commitment to nation, perseverance against odds, readiness to expand one's capacity, experience in organizing, appreciation of arts and music, attitude of helping and caring, seriousness about the details, eagerness to interact with people, love for peace, sense of justice, consciousness of equity, awareness of the deprived, comfort with other cultures, basic understanding of sex and family, understanding and facing moral dilemmas, belief in rationality, tolerance of diversity and plurality, and so forth. The list could be much longer.

The world would be different if schools provided more learning experiences that attended to such dimensions. In some Western cultures, the teaching in these affective or values dimensions is left to the church or the family. In other cultures, such dimensions are subsumed under "knowledge and skills,"[29] but are not earnestly taken care of by schools, public schools in particular.[30] In many systems, these are the privilege of the private schools, and are inherited from their religious past. The large variety of student organizations, sports teams and community services in such schools has provided rich learning experiences for the students in the human and social dimensions.[31] In many oriental cultures, however, such dimensions are indeed a serious part of school education. Even in these cases, the kind of "moral education"[32] in East Asian cultures, for example, is inherited from the pre-industrial era, and its contents and methodology have to be revisited in order to catch up with developments in society. In still other cultures, education and religion are intertwined concepts,[33] and developments in the affective and values domains are part of the process of personal religious formation. Overall, human learning in these dimensions is understudied. Good practices are not seriously analyzed and theorized, and cross-culture awareness is minimal. A lot has to be done in order that these affective and values dimensions receive their deserved attention on the policy agenda.

Nonetheless, in reality, teachers have to struggle with the paradigm that only academic studies count, only examination scores are reliable proxies for learning outcomes, and only those that are quantifiably measured are valuable.

CONCLUSION

I began this chapter with observations about fundamental changes in the workplace in a post-industrial society and their implications for individuals and education. The change in society is so comprehensive that it challenges the basic assumptions of the system of education established at the height of the industrial era.

A change of paradigms is by no means easy, but I have collected many examples, of which I am able to present only a few in this chapter, where

reforms are emerging and beginning to undermine conventional assumptions about education. Many such reforms are still in their embryonic stage, but are nonetheless precious.

The fundamental question is: If the basic function of education is to prepare young people for their future, are our education systems doing them justice? I believe that educators are mostly kind-hearted, and they are committed to helping our young people. However, do teachers know what our young people will face when they leave school? Do teachers know what is already quietly happening in the larger society that surrounds our schools?

What is presented in this chapter is based on common sense and public knowledge. It is only when we look underneath the surface that we discern the profound challenges to education. If this chapter confuses our readers and provokes queries, I have served my purpose.

Much of what I have discussed here is happening in societies where "education for all" is not seen as a problem, because they all enjoy near universal enrollment. Many of these societies are in the process of widening the participation in higher education. If my observations are valid, then it indeed poses a challenge to these systems: Education for all, but for what?

This change in the workplace will also pose a more serious question to so-called "less developed" countries that are in the process of achieving "Education for All" and are trying to catch up with the system of education that prevails in the so-called "more developed" nations. Do we really think that education systems should follow a linear model? Do we think that all countries should construct their educational systems based on an industrial model, until they find that such a model does not work for their future?

In this context, perhaps it is essential to mention that the coming of the post-industrial era is not limited to the more industrialized societies. Because of globalization, many of the less-developed economies are tightly geared to developments and markets in the developed economies. The changes in the mode of production and the notion of organization, for example, are taking place everywhere regardless of the economic status of the nation.

If the entire human society is gradually moving out of the industrial model, so should education!

NOTES

1. These were the themes of the meetings in Addis Ababa, Lima, and Karachi for the respective continents in the early 1960s.
2. Basically, Hong Kong, with a population of around seven million, runs a manufacturing sector in Mainland China across the border. Such a manufacturing sector comprises around 80,000 enterprises under Hong Kong investments, hosting around thirteen million workers. The vast majority of these workers are from within China. Presentation made by Andrew Leung, Chairman of Hong Kong Federation of Manufacturers, February 21, 2006.

3. This is a garment factory (name withheld) that I visited in 2007 in a World Bank project. The factory is an investment from a Taiwanese company listed in Hong Kong. The front-line workers are local, but the supervisors are all from Mainland China, largely from the region near Shanghai. The investment was there because of the import quota allowed by the Africa Growth and Opportunities Act (AGOA) in the United States.
4. This is the jargon adopted in manpower planning in many systems.
5. Based on study of seven major multinationals in Hong Kong.
6. According to a report in the local newspaper *Ming Pao Daily*, November 20, 2003.
7. Interview with Managing Director of an investment bank (name withheld) by Hayley Kan and K. M. Cheng, August 17, 2004.
8. Interview with Peter Wong, Senior Partner of Deloitte and Touche in Hong Kong. *Ming Pao Daily*, date unknown.
9. Interview with a graduate of the University of Hong Kong, December 10, 2005.
10. Quoted by Chris Humphries, Director General, City and Guild in his presentation at an international workshop organized by the World Bank Institute, May 15, 2007, Washington, DC.
11. There are reports that in the United States, the average retirement age has come down to 59, against the preferred 65 (Block and Armour, 2006).
12. Charles Handy's writings may serve as a good reminder. See, for example, his collected writings (1996).
13. This is prominently reflected in the "Key Competencies" as is formulated in the OECD: The Definition and Selection of Competencies: Theoretical and Conceptual Foundations Project (DeSeCo).
14. This is best reflected in the wave of theories in the late 1970s that condemn the "human capital" notion. This includes seminal works such as Dore (1976), Collins (1979), and a whole series of writings on "screening theories" which adopt a sociological approach, and "signaling theory" from an economics perspective (see the classical article by Spence, 1973).
15. A vast literature on "human capital" and, at one stage, "manpower planning" and "manpower forecasting" prevailed over educational planning in the 1960s through the mid-1980s. The human capital notion still survives.
16. A succinct yet comprehensive presentation of the theories can be found in National Research Council (2000).
17. This is raised by Senge (2000, p. 42) as one of the tacit assumptions about education in the Industrial Era.
18. See the critical analyses in Gould (1981/1996).
19. Hong Kong had unemployment rates as low as 1.7 percent in the 1980s. It reached a record high of 8 percent at the economic downturn in 2003. It remained at around 6 percent in 2005 and early 2006. Thereafter, it remains at 4 percent regardless of the fluctuations in the economy. At one point, in 2004, youth unemployment reached a record high of 35 percent (Census and Statistics Department, Hong Kong , 2007).
20. In 1989, six leading Institutes of Engineers from the United Kingdom, the United States, Canada, Australia, New Zealand and Ireland came together to agree on benchmarks for mutual recognition of engineering qualifications and professional competence. In 2007, the signatories of the Accord had extended to twelve Institutes, including most of the East Asian jurisdictions: Taiwan, Singapore, Japan, Korea, Hong Kong, and South Africa, and included a few other major countries (Germany, India, Russia, Sri Lanka, Malaysia) as provisional members. See http://www.washingtonaccord.org.

21. This is happening in the Journalism School in Columbia University, United States, as well as with the Journalism undergraduate program at the University of Hong Kong and Shantou University in Mainland China.
22. Announcement by David Blunkett, Minister of Education and Science, February 15, 2000.
23. This is the case in Hong Kong where the newly introduced double degrees attract the most able students. The trend is now spreading in other Asian systems of higher education.
24. Since 1999, in China, for example, there is a move to include integrated papers in higher education entrance examinations, so that students are not limited to either science or arts. There is a similar move in Singapore and Hong Kong to blur the science–arts distinction in secondary schools.
25. This is the major theme of reform in many universities in China. Fudan University, the premier institution in Shanghai, presents the typical case of liberalizing the curriculum, so that students are not required to elect their "major" until the end of the first year, and are allowed to change their choice before the end of the second year. Such arrangements are rather unusual in Asia.
26. The Bologna Process refers to the implementation of the Bologna Declaration of 19 June 1999 which involves six actions in the process to unify higher education within the European Union. The six actions refer to comparability, the system, transferability, mobility, quality assurance and the European dimension of higher education. In terms of the system, the Declaration calls for two cycles: a first cycle geared to the employment market and lasting at least three years, and a second cycle (Master) conditional upon the completion of the first cycle.
27. Tacit knowledge refers to the knowledge that is expected of a professional beyond the technical knowledge of that profession. For example, social awareness, ethical sensitivity and communications capacity are expected of a medical doctor.
28. OECD: The Definition and Selection of Competencies: Theoretical and Conceptual Foundations Project (DeSeCo).
29. Indeed, Howard Gardner has discerned three different cultures about human competence. Among others, he observes that there are cultures where human–nature relations are emphasized, whereas in other cultures human–human relations are basic (Gardner, 1984).
30. In some education systems, the teachers' unions restrict public school teachers' contractual commitments to classroom teaching, sometimes with specified hours.
31. This is the case with the "independent schools" in the United Kingdom (often misleadingly called "public schools," formerly known as "grammar schools"). Such activities fall under "pastoral care" that reminds us of their religious legacy. Many private schools in the United States have the same model.
32. In Chinese education philosophies, in order to prepare a whole person, education comprises three dimensions: moral, intellectual, and physical (in Mainland China), or five dimensions: moral, intellectual, physical, community and aesthetics (in Hong Kong and Taiwan). Each of these dimensions has its own framework and methodology, but moral education always comes at the top. These are part of the culture that was inherited from ancient philosophies, but somehow survived in the modern school system. A typical description of how moral education is practiced in a Chinese school can be found in Lo (2003). Similar philosophies prevail in Japan and Korea.

Morality is almost the sole content of the *Education Decree* made by the Meiji Emperor in 1898.

33. This is the case, for example, in some Muslim societies.

REFERENCES

Anderson, Chris. 2006. *The Long Tail: Why the Future of Business Is Selling Less of More*. New York: Hyperion.

Block, Sandra and Stephanie Armour. 2006. "Many American Retire Years Before They Want To." *USA Today*, July 26.

Census and Statistics Department, Hong Kong. 2007. *Gross Domestic Product by Economic Activities at Current Price*, May 18. Hong Kong: Hong Kong Government.

———. 2007. *Quarterly Survey of Employment and Vacancies*. Hong Kong: Hong Kong Government.

———. 2008. *Hong Kong Monthly Digest of Statistics, March* (Table 2.7). Hong Kong: Hong Kong Government.

Coordinating Office for the Promotion of Small and Medium Enterprises, Shanghai. 2005. *Small and Medium Enterprises: A Development Report*. Hong Kong: Hong Kong Government.

Collins, Randall. 1979. *The Credential Society*. New York: Academic Press.

Commission on Youth. 2003. *Continuing Development and Employment Opportunities for Youth*. Hong Kong: Hong Kong Government.

Deal, Terrence E., and Allan A. Kennedy. 1999. *The New Corporate Cultures: Revitalizing the Workplace After Downsizing, Mergers, and Reengineering*. New York: Perseus Publishing.

Dore, Ronald. 1976. *The Diploma Disease*. Berkeley: University of California Press.

Delors, Jacques, et al. 1996. *Learning: The Treasure Within: Report to UNESCO of the International Commission on Education for the Twenty-first Century*. Paris: UNESCO.

Gardner, Howard. 1984. "The Development of Competence in Culturally Defined Domains: A Preliminary Framework." In *Culture Theory: Essays on Mind, Self, and Emotion*, ed. Richard A. Shweder and Robert A. LeVine, 257–275. Cambridge: Cambridge University Press.

Gardner, Howard. 1999. *Intelligence Reframed: Multiple Intelligences for the 21st Century*. New York: Basic Books.

Gould, Stephen J. 1981/1996. *The Mismeasure of Man*. New York: W. W. Norton & Company.

Handy, Charles. 1996. *Beyond Certainty: The Changing World of Organizations*. Boston: Harvard Business School Press.

Lo, Rita. 2003. *Education for Personal and Social Development: A Case Study for a Key Secondary School in Shanghai*. PhD thesis, University of Hong Kong.

National Research Council. 2000. *How People Learn: Brain, Mind, Experience and School*. Washington, DC: National Academy Press.

Organisation for Economic Co-Operation and Development (OECD). 1998. *Education at a Glance: OECD Indicators 1998*. Paris: OECD.

———. 2001. *Education at a Glance: OECD Indicators: Education and Skills*. Paris: OECD.

———. 2008. *Education at a Glance: OECD Indicators 2008*. Paris: OECD.

Senge, Peter. 2000. *Schools That Learn*. London: Nicholas Brealey.

Spence, Michael. 1973. "Job Market Signaling." *Quarterly Journal of Economics* 87 (3): 355–374.

UNESCO. 2006. World Conference on Arts Education (March 6–8, Lisbon). http://portal.unesco.org/culture/en/ev.php-URL_ID=26967&URL_DO=DO_TOPIC&URL_SECTION=201.html.

U.S. Census Bureau. 2001. *Statistical Abstract of the United States,* Table No. 723. Washington, DC: U.S. Census Bureau.

U.S. Department of Labor, Bureau of Labor Statistics. 2006. "Number of Jobs Held, Labor Market Activity, and Earnings Growth Among the Youngest Baby Boomers: Result from a Longitudinal Survey," *Department of Labor News*, August 25. Washington, DC: U.S. Department of Labor.

Weber, Max. 1947. *The Theory of Social and Economic Organization,* Trans. A. M. Henderson and T. Parsons. New York: Oxford University Press. (Or see a brief version in Max Weber. 1929. "Bureaucracy." In *From Max Weber: Essays in Sociology*, trans. and ed. H. H. Gerth and C. Wright Mills, 1973. New York: Oxford University Press; or collected in *Classics of Organization Theory* [4th Ed., 1996], ed. Jay M. Shafritz and J. Steven Ott, 80–85. Fort Worth: Harcourt Brace).