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Shanghai and Hong Kong: Two Distinct Examples of Education Reform in China

China has made huge strides in educating its population. During the Cultural Revolution, educated people, including teachers, were sent to rural areas to work in the fields. The teaching force was effectively destroyed. But, not three decades later, parts of the country – notably Shanghai – are among the contenders for top spots on the world's education league tables. Hong Kong reverted back to China in 1997 and has also made significant reforms to its education system.

This chapter looks at how China has made rapid progress, taking Shanghai and Hong Kong as examples of innovation. The main lessons include the government's abandonment of a system built around "key schools" for a small elite and its development of a more inclusive system in which all students are expected to perform at high levels; greatly raising teacher pay and upgrading teacher standards and teacher education; reducing the emphasis on rote learning and increasing the emphasis on deep understanding, the ability to apply knowledge to solving new problems and the ability to think creatively. All of these are reflected in deep reforms to the curriculum and examinations. These changes have been accompanied by greater curricular choice for students and more latitude for local authorities to decide on examination content, which in turn is loosening the constraints on curriculum and instruction.

INTRODUCTION

Despite China's emergence as one of the world's most influential economies, relatively little is known in other countries about China's educational system and how its students learn. People might have gained some insights either through the achievements of its students in universities abroad, or from their high scores in all kinds of tests. Otherwise, the prevailing impression is that students in China learn by rote, and that much in the schools is about memorising and cramming for examinations.

This chapter seeks to provide a more nuanced and accurate picture of education in China, using Shanghai and Hong Kong as examples. Shanghai is one of China's most developed urban areas, while Hong Kong, despite having the same cultural background, is a rather different society under the "one country, two systems" political arrangement. However, as China encompasses such a diverse spectrum of economies, societies and cultures, Shanghai and Hong Kong can provide a very powerful window into education into China, but may not be representative of all parts of the country.

Nevertheless, in both cases, student learning is the focus, with other dimensions – such as teaching and teachers, school facilities and systemic strategies – providing the context and supporting various aspects of student learning.

CHINA'S EDUCATION SYSTEM: THE CULTURAL CONTEXT¹

China has a long tradition of valuing education highly. This began with the Civil Examination system, established in 603 AD, which was also exported to Japan and Korea later in the 7th century. It was a very competitive yet efficient system for selecting officials, and was known for its rigor and fairness. These examinations evolved over many dynasties before their abolition in 1905.

The system had three tiers of examinations, at county, provincial and national levels. There were variations, but the general mode was basically an essay test, where the candidates were confined for days in an examination cell, fed with good food, and required to write essays of political relevance. To do this, they had to be familiar with the classics, basically the *Four Books* and *Five Classics*, and refer all arguments to these works – hence the requirement for "rote-learning". Good calligraphy and writing styles were also part of the basic requirements. The final level of selection was usually held in the Examinations Department, which was often part of the imperial organisation. Whoever gained the appreciation of the Emperor, who was virtually the chief examiner, would be the champion, followed by a few runners-up. These winners were appointed to various official posts according to their examination results.²

A few "beauties" of this system made it sustainable for almost two centuries. First, it was simple, requiring only performance in the examinations. Teachers were only affordable by wealthy families, so no formal institutions such as schools existed. It was basically a self-study system, or a "self-motivated distance learning system", in contemporary jargon. It was low-cost for both the government and the household because it involved only an examination, and the textbooks (the standard classics) were common in household collections. Apart from the exclusion of women (Elman, 2000), which was part of the broader ideology at the time, there were no entrance requirements, so it was thought that family background would not matter. Indeed, Chinese folklore over hundreds of years, reflected in novels, operas, dramas and all art forms, includes stories about scholars from poor families who endured years of hardship and poverty, became champions in the Civil Examination, were appointed ministers, married princesses and enjoyed glorious home-coming ceremonies. The Civil Examination drove almost all families, regardless of socio-economic status, to have high hopes for their children's future (*i.e.*, the boys), and such hopes translated into hard work and adaptability to difficult learning environments. This cultural tradition exists throughout the entire Chinese population. However, it has also led to the emphasis (almost the exclusive emphasis) on examination results for validating genuine learning or knowledge. In a way, for more than 16 centuries, generation after generation of young people were trained only to face the challenges of examinations.

This cultural respect for "education" hence carries a special meaning for China: education (basically examination preparation) is viewed as the sole route for upwards social mobility, the only hope for an individual's future. This is translated into a zest for credentials and the predominance of examinations to win them.

What are the consequences of this historic cultural emphasis on exams and credentials?

- Education was seen as the major path to climb the social ladder and change one's social status. This was intertwined with the supreme status given to civil servants (officials). And because of the Civil Examination, only scholars could become officials. A circular causality is at work here, where social status, officialdom, scholarship, and education became synonymous in people's minds.



- Despite the meagre odds of moving to the top, the chances of success mobilised the entire population to take examinations. This was strongly augmented by the assumption that working hard pays off. While other factors, such as family background and innate ability, are not controllable, working hard was something anyone could do. Some corollary observations may help explain the culture of education in contemporary China and to a large extent in other East Asian cultures.³
- Success in examinations is therefore still seen as the only respectable success, unlike in other societies where military capacity (such as with the *samurai* in Japan), or economic wealth can also attract social respect.⁴
- As a result of this history, reading, learning and education are often taken as synonyms in Chinese. Reading is regarded as the only effective means of learning, and for that matter of memorisation. “All are low but reading” is the saying; hence the tradition of “rote learning” as perceived by outside observers.
- The reality, however, was that achievements in education were decided by the subjective favour of the emperor or the chief examiner. Therefore successful essays conveyed ideas that would appeal to authority. This tradition may help explain the cultural aspect that favours political correctness over scientific objectivity.
- The importance attached to examination results also underpins the prevailing mentality among teachers, students and parents, in which the direct relevance of the curriculum is less important than achieving high scores.
- As most research results concur, motivation in education in China (and also in Japan and Korea) is basically extrinsic, prompted by family or social expectations (Chapter 6). In most cases, intrinsic motivation or genuine interest in the subject matter *per se*, are not the driving factors.
- This also underpins the fundamental source of examination pressure. In all these East Asian societies, frequent and intense examinations and tests in schools and high-stakes public examinations prevail throughout the entire education system, leading to all kinds of private tuition and tutorial schools to prepare students for examinations.
- The Civil Examinations tradition also explains the culture of hard work and tolerance of hardship. “Only those who could tolerate the bitterest among the bitter would come out as a man above men,” as the saying goes.
- This tradition also underpins the belief that effort is more important than innate ability. “Diligence can compensate for stupidity” is a common Chinese belief, a view not shared by many other cultures.

The social emphasis on education has always made it easy for Chinese-based societies (such as mainland China, Hong Kong, Chinese Taipei and Macao) to develop their education systems, as there is popular support for expanding education to reach more people. However, at the same time, genuine attention to quality learning is often a challenge for education reformers in these societies.

CHINA'S EDUCATION SYSTEM: THE HISTORICAL CONTEXT

This system has undergone several stages of development: the rather rigid Russian model of the 1950s, the period of “renaissance” in the early 1960s, disastrous damage during the Cultural Revolution (1966-1976), rapid expansion during the 1980s and 1990s, and the move towards massive⁵ higher education in the 21st century. With perhaps the exception of the Cultural Revolution, education in general has trended upwards, both in scale and quality.

The Cultural Revolution: 1966 to 1976

It is essential to understand the context in which China's education reform started in the early 1980s. The death of Mao Zedong in 1976 marked the end of the Cultural Revolution. Formally the Proletariat Cultural Revolution, it was started by Mao in 1966 as a national-scale political campaign to eliminate all bourgeois influences in the country's “superstructure” (as opposed to the economic infrastructure). Violent activities sought to remove and destroy all symbols of bourgeois culture, such as music, drama, opera and novels, and to make sure their replacements were rooted in proletariat ideology. Activities in all these art forms had to start again from scratch, using a few “model” prototypes created from pure proletariat ideology. It became a social campaign and intellectuals were the most vulnerable.

Among the revolution's consequences was the closing down of conventional schools. They were replaced with schools led by political teams of workers, peasants and soldiers, and the curriculum was totally revamped to reflect the essence of “class struggle.” There were several attempts to resume schooling, but with little effect. Higher education institutions were suspended, replaced by new institutions admitting only workers, peasants and soldiers regardless of their academic merits. Professors and intellectuals were sent to factories, villages and remote places to be “re-educated.” The concept reflected a utopian ideal of egalitarianism, where everybody produces for the state

and the state distributes its wealth equally among its citizens. But the reality was total stagnation of the economy, a society of “equal poverty”, as economists recognised in hindsight. It is no exaggeration to say that China had to rebuild the entire education system in the late 1970s and early 1980s from the ruins left by the Cultural Revolution.

The reconstruction of education: Late 1970s through the 1980s

The end of the Cultural Revolution brought about unprecedented changes in China. In 1978, Deng Xiaoping started an economic reform in which peasants were given land and allowed to keep their crop surpluses. Commercial activities began to take place. Schools resumed normal activities. A milestone in education development at that time was the resumption of university admissions in 1977 (which doubled the intake) and 1978, when most of those enrolled were mature students who had been deprived of learning opportunities during the Cultural Revolution.

At the same time, peasants were eager to build their own schools in the villages. This led to a decision in 1980 to allow local non-government financing of schools as a way of mobilising community resources. This paved the way for a major reform and decentralisation of education in 1985. There was an immediate mushrooming of schools and the target of universal primary education was achieved in just a few years. The same reform also called for universal nine-year education as a national target, with benchmarks every year towards its accomplishment.

In 1986, China enacted the *Law of Compulsory Education*, which required every child to complete nine years of formal schooling – six years of primary school and three years of junior secondary school.⁶ By the mid-1990s, China had basically achieved this goal.

At about the same time, in 1980, cities like Shanghai, with a large non-state enterprises sector, started pioneering new types of vocational schools that did not guarantee or assign jobs. This was a significant step away from the strict manpower planning that had been an integral part of the planned economy. By 1997, formal assignment of jobs to graduates disappeared from all levels of the education system. It was also in 1982 that China for the first time established its degree system for higher education, following the Western model.

It was not until 1988, however, that China moved away from uniform national textbooks to experiment with diversity in textbooks; until that point cultural tradition stated that these textbooks were the most essential instrument for student learning and were provided by the state almost free. (This was very different from practices in other developing countries of similar economic status). Textbook diversification allowed for diverse interpretations of the centralised syllabuses, and there were attempts, for example in Shanghai (see next section), to create new syllabi within the centralised framework.

Quantitative expansion: 1990 to the present day

China has now passed the stage of quantitative expansion in basic education. Official statistics (for 2009) show a net enrolment of 99.4% at the primary school level, the envy of many countries. The gross enrolment ratio for junior secondary school was 99%.⁷ In the same year, gross enrolment at senior secondary level, both general and vocational, was 79.2%. The general (*i.e.* academic) senior secondary schools enrol 52.5% of students at this level, putting about half of senior high school students in the academic stream (Figure 3.1). However, the figures may conceal regional disparities. In most urban areas, gross enrolment at the senior secondary level is 100% or above, which means that the number of students enrolled exceeds the number in the appropriate age group.

The 1985 reform, as mentioned earlier, established the framework for decentralised local school finance and governance. Almost as a textbook example, decentralisation led immediately to huge regional disparities because of the differences in local economies. After several back-and-forth debates and adjustments about degrees of decentralisation, the *Revised Law of Compulsory Education*, enacted in 2006, established differential subsidies from the central government to different regions of varied economic capacities.⁸ This marked the government’s determination to sustain universal basic education, and hence paved the way for more energetic reforms in educational quality.

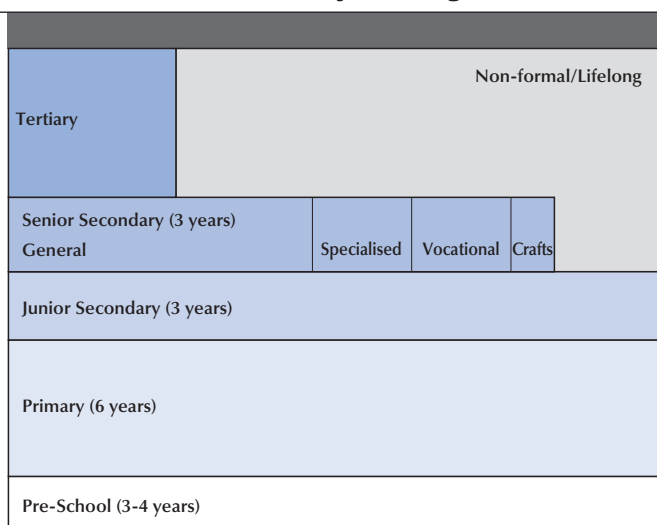
The 21st century: Focus on higher education

If the highlight of the 1980s and 1990s was expansion of basic education to the entire population, then the emphasis of the first decade of the 21st century has been the expansion of higher education. Starting in 1998, China broke away from its long-standing policy of restricting higher education to a small percentage of the population and launched a spectacular expansion. In 1999, all institutions across the nation were required to increase intake by 50%. This was followed by jumps of 25% in 2000 and 22% in 2001.⁹



■ Figure 4.1 ■

China's education system organisation



Despite government intentions to pause this expansion, higher education has now gained its own momentum, and all kinds of non-government initiatives, such as private institutions and self-financing programmes, are flourishing at their own pace. The net result is that the higher education student population grew from less than 6 million in 1998 (before the expansion) to 29.8 million in 2009. Although the enrolment ratio still stood at a low 24.2% in 2009 (Ministry of Education, 2010a), China nonetheless has the largest number of higher education students in the world, much higher than the United States (around 18 million in 2007), which was the second largest, and above India (around 13 million in 2007) (UNESCO Institute of Statistics, 2009).

The expansion of higher education has immense implications for the entire education system. On the one hand, there is visible graduate unemployment, particularly in the major metropolitan areas, including Shanghai. Analysts often argue that this is mainly due to the unwillingness of graduates to take jobs with less satisfactory incomes or in less developed regions, and hence this should not deter further development of higher education.¹⁰ And indeed the job situation does not appear to hamper parents' and young people's aspiration for more higher education. On the other hand, the rapid expansion of higher education has created a new level of desire for academic studies, inducing remarkably high enrolment in general (academic) senior secondary schools and lowering enrolment in vocational schools.

In all these expansions, private institutions emerge in great numbers, although in terms of percentage and student populations they are still the minority. However, the trend is irreversible. It is also noticeable that private institutions in mainland China are formally called *minban* schools, which means "community" schools, or more accurately, "non-government schools". The nomenclature is justifiable, because in China, public and private distinctions are rather blurred. For example, many private schools are headed by former government officials, or government departments may run private schools for income.

The quantitative picture would not be complete without including China's complex structure of lifelong learning, which includes full-time sabbatical study, evening spare-time programmes, distance learning programmes and self-study examinations. Such learning opportunities often lead to formal credentials such as certificates and diplomas, and sometimes to degrees. Operators range from major institutions of higher education (as their extension programmes), to individual professionals and private for-profit enterprises.

TEACHERS AND TEACHING

Teachers have always been a major issue in China. Educational expansion in the 1980s immediately led to an enormous shortage of teachers. In the Cultural Revolution, many young people with some education (such as primary or junior secondary) were branded intellectuals and sent to rural villages. They were seen as the most educated in the villages, and became teachers. Most of them were untrained, under-qualified and paid little.



They were generally called *minban* (community) teachers, but many were very competent and popular nonetheless. A policy in the 1980s aimed to retrain these teachers and put them on the public payroll. The success of this policy, however, has caused an exodus of teachers fleeing back to cities in search of better living and working conditions. Village schools now often resort to hiring even less qualified teachers using the “supply teachers” category that is meant for temporary substitutes. This is a structural problem that has yet to be solved. The disparity in competence among the vast number of China’s teachers is perhaps a driving reason for the development of a comprehensive and effective system of organising teaching, as will be discussed below.

The situation in cities is more definite and positive. Since 1997, when universities began to charge fees, a state policy has given early admission to student teacher candidates. Hence, “normal” (teacher training) universities enjoy priority admissions and attract better students. In major cities, such as Beijing and Shanghai, where the economy is more open and incomes fluctuate more, teaching stands out as a preferred occupation attracting a more stable income. Over the years, because of the improvement in teachers’ salary scales, teaching has risen up the ladder of preferred occupations.

It has to be added that while teachers in mainland China do not receive very high salaries, they often have other significant income on top of their salaries. This may come from additional assignments beyond normal responsibilities, income generated outside school (from private tutorials or invited talks), or school “bonuses” (e.g. sponsoring fees collected from students who come from other neighbourhoods or whose test scores are below the official admissions cut-off).

Class sizes in mainland China are generally large: the national norm is 50 students. However, in rural areas where good schools are sparse, it is not unusual to see classes of over 80 or in the extreme case, over 100. Parents often indicate their preference for better schools and better teachers over smaller classes. However, in major cities (and Shanghai is typical), recent drastic declines in population have forced local governments to adopt small classes so as to minimise teacher layoffs. This has significantly reduced teachers’ workload and created room for student activities during lessons that would be impossible in large classes.

China has also developed a rather rigorous framework and system of teaching. At the grassroots level, subject-based “teaching-study groups” engage in study and improvement of teaching on a daily basis. For example, a physics teacher of Senior Secondary 2 (SS2) involved in a teaching-study group typically teaches 12-15 classes per week, teaching only one programme (e.g. SS2 Physics) and nothing else. There are timetabled sessions when the study group will meet, often with related personnel such as laboratory assistants, to draw up very detailed lesson schemes for a particular topic the following week. Teachers are expected to teach according to the scheme, which is then translated into more detailed lesson plans by and for individual teachers.

The lesson plan serves not only as a guide for the teacher during the lesson, but also as documentation of the teacher’s professional performance. In many cases, teachers are observed by the school principal or by district education officers when they are being considered for promotions or awards. In short, a Chinese teacher sees a lesson more as a show or a performance, and puts in many hours of preparation to cover the standard 40-minute period.¹¹

The “teaching-study group” is supervised for each of its subject areas by the “teaching-study office” in the Education Bureau (in a rural country or city district), which is in turn supervised by the relevant “teaching-study office” in the Education Department in the provincial or municipal government. Professionally, all these “teaching-study” setups work under the Basic Education Department II within the central government’s Ministry of Education. The Basic Education Department II is charged with all matters related to curriculum development, textbook production, pedagogy enhancement and school management for the whole nation. In a way, teaching in China is much more centrally organised than in many other systems.

During actual teaching, teachers may observe each other or may be observed by peers (in the case of a new teaching topic because of curriculum change, for example), by new teachers (so they can learn from more experienced teachers), by senior teachers (for mentoring), or by the school principal (for monitoring or for constructive development purposes). Sometimes, teachers are expected to teach demonstration lessons (called public lessons) for a large number of other teachers to observe and comment upon. This structured organisation of teaching in China is thus not only a means for administration; it is also a major platform for professional enhancement.



Such teaching protocols are present throughout China, from remote villages to prosperous cities. These practices are taken for granted as the basic protocol for teaching. Observers may see this as a matter of quality assurance, but it serves also the fundamental purposes of professional development and pedagogical advancement. The steps are built into teachers' career ladders.

Teachers in China are classified into four grades as an indication of their professional status. Promotion from one grade to the next often requires the capacity to give demonstration lessons, contributions to induction of new teachers, publications in journals or magazines about education or teaching, and so forth. Of course, many other aspects of education are unique to China, but the teaching protocols are perhaps among the most relevant to this chapter.

This picture of teaching in China would not be complete without mentioning that almost all the officers in the government education authorities, both at municipal and district levels, started as school teachers. Most of them distinguished themselves as teachers or school principals with strong track records. This perhaps explains their devoted professional attention to teaching and learning amidst all the administrative chores and political issues they normally contend with. They manage, however, to maintain this teaching focus while at the same time relying on a strategic vision that enables them to navigate a policy arena which goes well beyond education.

CONTINUOUS CURRICULUM REFORM

Ongoing reform is another dimension in the larger context of China's education system that merits attention. China has launched a series of reforms since the early 1980s; indeed, reform is a sustained concept in education. As noted earlier, major milestones include the nationwide reform in 1985 that decentralised finance and administration; a 1988 move to encourage local production of textbooks (rather than requiring a uniform set of textbooks across the nation); a spectacular expansion in higher education in 1999, together with a major re-design of higher education entrance examination in the same year; legislation in 2002 to encourage private schools; and a major policy move in 2006 to alleviate disparity in financial support for education.

The latest initiative is a major national comprehensive campaign to improve education in the next decade – the Outline for Medium and Long-term Development and Reform of Education (announced in July 2010). This prescribes education developments up to 2020. One of its ambitions is to introduce universal pre-school education. This is likely to pose new challenges given the nation's diverse conditions and concepts about early childhood development. The strategy also highlights the need to overcome educational disparity and the importance of respect for diversity and individual needs. It is generally regarded as a strategic plan for moving into an era of quality, equity and individuality in planning education.

Examinations have long been a focus of attention in China in any attempt to reform education. Teaching and learning, in secondary schools in particular, are predominantly determined by the examination syllabi, and school activities at that level are very much oriented towards exam preparation. Subjects such as music and art, and in some cases even physical education, are removed from the timetable because they are not covered in the public examinations. Schools work their students for long hours every day, and the work weeks extend into the weekends, mainly for additional exam preparation classes. As noted earlier, private tutorials, most of them profit-making, are widespread and have become almost a household necessity. In the past two decades, the national policy agenda has sought to move the system away from examination orientation, but the call has seldom met with significant success. The most recent appeal along this line is the move to reduce students' workload, which is regarded as a major task in the coming decade of education development.

Examination pressure remains a major concern to educators, parents and policy makers. Some provinces forbid the holding of formal classes over the weekends. There is a general belief that emphasis on examinations jeopardises the genuine development of young people and is detrimental to the entire national population, but few effective solutions have emerged to reduce or minimise examination pressures. Educators jokingly describe the situation as follows: "High-sounding appeals to promote quality education, down-to-earth preparation for examinations."

Nevertheless, committed reformers continue to make great efforts to reform the curriculum at the national level. A major document issued in 2001 calls for the following changes (Ministry of Education, 2001):

- To move away from pure knowledge transmission towards fostering learning attitudes and values.
- To move away from discipline-based knowledge, towards more comprehensive and balanced learning experiences.

- To move away from pure “bookish” knowledge and to improve relevance and interest in the content of a curriculum.
- To move away from repetitive and mechanistic rote-learning towards increased student participation, real-life experience, capacity in communications and teamwork, and ability to acquire new knowledge and to analyse and solve problems.
- To de-emphasise the screening and selective functions of assessments and instead to emphasise their formative and constructive functions.
- To move away from centralisation, so as to leave room for adaptation to local relevance and local needs.

Concrete changes include dilution of the disciplined structure of “subjects” so as to re-organise content according to life-relevance and progression in learning; the introduction of new integrated contents at the cross-over between natural sciences and humanities; the creation of elective arts modules as a compulsory part of the curriculum; to change examination formats from fact regurgitation to analyses and solutions for stated problems; and so forth.

It is clear that the reform discourse is one of “student learning”; a discourse that is shared by other similar reforms in Singapore and Hong Kong at almost the same time. The reform is strongly underpinned by the concepts of constructive learning. It is not just an improvement of the existing conventional curriculum, but an overhaul of the fundamental concept of curriculum, and hence it challenges basic assumptions about education and curriculum. It means not doing what has traditionally been done, but doing more, better and differently. Hence, it is curriculum reform in the genuine sense.

Understandably, this approach has received strong opposition from leading scientists in the academic establishment. They argued that such a curriculum would damage the integrity of the disciplines and would hinder the nation in producing new scientists. The constructive interpretation of learning has also led to debates among education researchers and policy advisors. Some interpret constructive learning as pure empirical experience, which deprives students of learning from earlier learning outcomes. Others regard constructive learning as the only effective approach to human learning, and insist that it should be the core tenet of curriculum reform.

The net result is progress in curriculum reform, but its momentum is very much hampered by academics’ conceptual opposition, as well as by front-line teachers who have found the new curriculum difficult to handle when preparing their students to do well in public examinations. Nonetheless, the reform is gradually gaining ground.

The following discussion focuses on education and learning in two major Chinese cities: Shanghai and Hong Kong. Both are vibrant economies and have undertaken major comprehensive education reforms in the past two decades. While they have both inherited the same cultural traditions about education, the two cities work under different political and ideological frameworks. Nevertheless, their reform efforts share a similar discourse of making student learning central, but their different assumptions about the role of government have led them to adopt rather different approaches.

■ SHANGHAI: A LEADER IN REFORM

Shanghai is the largest city in China, with a population of 20.7 million, of whom 13.8 million are permanent residents, and 5.4 million are temporary. In addition, there are around 1.5 million who are mobile (without a Shanghai home; Shanghai Municipal Statistics Bureau, 2010). The city is one of four municipalities with the status of a province (the others are Beijing, Tianjin and Chongqing). In 2009, Shanghai’s GDP was USD 11 563 per capita. While its population and land account for 1% and 0.06% of the nation respectively, it contributes one-eighth of China’s income (Information Office of Shanghai Municipality and Shanghai Municipal Statistics Bureau, 2010). In 2009, the contribution of the service sector to economic growth in Shanghai was around 60%, the highest in mainland China.

While Beijing is China’s political centre, Shanghai is its undeniable business centre. Shanghai is also the country’s most international and open city. This is attributable to its prosperous and colonial past before the change of government in 1949. It was among the first ports forced open by international powers in the mid-19th century.¹² After 1978, as China opened up to trade and began the transition to a market economy (the “socialist market economy”), Shanghai took on a new role in almost all fronts, including education.



Ahead of the pack in universal education

Shanghai is among the most internationalised cities of mainland China, but cultural traditions about education still prevail. Popular support for education means the city has had little difficulty in launching universal education. However, Shanghai also struggles with undue examination pressure, which is still a major item on the reform agenda.

Shanghai was among the first cities to achieve universal primary and junior secondary education and was also among the first to achieve almost universal senior secondary education. According to the *Shanghai Yearbook 2009* (Shanghai Municipal Government, 2010), enrolment at the age of compulsory education was above 99.9%, and 97% of the age cohort attended senior secondary school (general and vocational). It is notable that enrolment for preschool programmes was 98%, which already surpasses the new national preschool education goal for 2020.

Statistics also show that over 80% of the city's higher education age cohort are admitted into higher education in one way or another (compared to the national figure of 24%; Ding, 2010). In other words, all those who would like to attend higher education are able to do so. There were 61 higher education institutions in Shanghai in 2009, plus quite a few private institutions yet to be officially recognised. There would be higher education over-supply if only residents of Shanghai were counted,¹³ but Shanghai institutes also admit students from all over the nation.¹⁴ Indeed, Shanghai has always been a preferred place to pursue higher education, perhaps second only to Beijing, and has attracted the best students from the national pool of elite candidates.

If it were not for the admission quota put aside for Shanghai high school graduates, the city could have attracted more and better candidates from the entire nation. Graduates from Shanghai's institutions are allowed to stay and work in Shanghai, regardless of their places of origin. For that reason, many "education migrants" now move to Shanghai mainly for to educate their children.¹⁵ Of course, many Shanghai students attend higher education in other cities, usually Beijing.

Nevertheless, Shanghai is indeed an education hub in China, and is very high on the aspiration ladder for potential candidates. This situation has greatly strengthened the competitiveness of the city's higher education institutions. What is remarkable, however, is that even with the very generous admissions quota for local students, this sense of competition is still very keen. Reformers had thought that when the system became less selective, undue competition would also be reduced. This does not seem to have happened.

There are varied interpretations of this phenomenon, which is common to many Asian societies. One is that the Chinese perceive society as a vertical hierarchy¹⁶ and always seek to enter the best institution despite broader access to higher education in general. Indeed, institutions are ranked in parents' minds. By the same token, parents would like to see their children ranked highest in their classes, and anything less than 100% is perceived as undesirable.¹⁷ Another interpretation is that the cultural tradition cherishes hard work, and that to "study" (or "reading books" in the ancient tradition) is their "responsibility". Parents and teachers like to keep students busy studying and do not feel comfortable if students spend less time studying. Hence, despite the increase in higher education opportunities, examination pressure persists in Shanghai as in other parts of China.

The cultural heritage also works in positive directions. Shanghai is home to quite a few experimental programmes that are seen as pioneers in developing quality education as opposed to examination pressure. One such example is "success education" (Box 4.1).

Box 4.1 Success education

Shanghai's Zhabei district is characterized by high crime and poor educational performance. In 1994, Liu Jinghai became the principal of the Zhabei District School No. 8, a school that had been among the poorest-performing in the district. Mr. Liu applied a strategy called "success education" that he developed through years of research. The strategy encourages teachers to instill low-performing pupils with greater confidence in their abilities to become potential achievers. This program has transformed School No. 8, placing it in rank 15 out of 30 schools in the district. Around 80% of School No. 8 secondary graduates go on to university, compared with a municipal average of 56%. In 2005 the Shanghai Education Authority asked Mr. Liu to help turn around 10 other low-performing schools in Shanghai through "commissioned administration" whereby teachers from School No. 8 work with partner schools applying administrative and pedagogical practices of success education.

Reforming exams in Shanghai

Shanghai has opted to modify the mode and contents of examinations so they serve the purpose of curriculum and pedagogy reform. In Chinese phraseology, public examinations are the baton that conducts the entire orchestra – rather than removing the baton, the alternative is to modify the baton so that it conducts good music.

In 1985, Shanghai was given the privilege of organising the higher education entrance examination for universities under its jurisdictions. Since then, a lot of effort has gone into reforming assessments and examinations. Generally, exam changes match reform expectations in curriculum and pedagogy. As an example, integrated papers are required that cross disciplinary boundaries and test students' capacity to apply their knowledge to real-life problems. As another example, examination questions provide students with information not covered in the syllabuses and so test their abilities in applying what they know to new problems. Multiple-choice questions have disappeared from the city's public examinations.

Student engagement

One of the most essential influences of China's cultural heritage is the intensity of students' engagement in learning. Typically in a Shanghai classroom, students are fully occupied and fully engaged. Non-attentive students are not tolerated. In one mathematics lesson observed for this research, a lesson which was by no means unique, students at Junior Secondary II were learning about parabolas. Students covered 15 problems at their desks, plus selected students gave blackboard demonstrations. This is rather different from classrooms in other cultures, where students may not be required to be fully engaged or attentive throughout the entire lesson. Such intense concentration is considered a student's responsibility in Chinese culture.

Student engagement in learning is not limited to lessons. Homework is an essential part of their learning activities and in a way governs their lives at home after school. Parents expect students to do homework every evening and are prepared to devote their family lives to student study, again as part of ancient tradition. Homework is such a burden to students that many local authorities in China have stipulated a maximum amount of homework (measured in hours) that schools are allowed to assign. Shanghai was among the first areas to impose such limits as a municipal policy.

The intensity of students' engagement goes well beyond the schools. A rather comprehensive "remedial system" of tutorial schools caters to the demands of exam preparation.¹⁸ In the absence of formal statistics, it is estimated that over 80% of parents send their children to tutorial school. Such schools are mostly for-profit, operate after school hours or at weekends, and tend to use small groups to focus on particular subjects. Parents see such tutorial schools as essential for enabling students to pass the public examinations with flying colours. Teachers are not totally against such schools either, because they also think that passing examinations is the prime aim of student study. Even parents who are against examination cramming often send their children to tutorial schools, almost as a matter of insurance. Those who go to such classes are not all weak students: even very strong students like to reinforce their strengths to achieve higher scores in the examinations.

Apart from the "remedial system", there is also the "supplementary system"¹⁹ of institutions or programmes outside schools, where young people can learn music, fine arts, sports, martial arts (*gungfu*) and all kinds of subjects not offered by schools. The most popular are piano, flute, ballet, Chinese calligraphy and Chinese painting. Parents are very prepared to invest in these expensive learning activities.

Students' engagement in learning does not stop at academic study. They are obliged to take part in all kinds of other activities (e.g. see Box 4.2). In Shanghai schools, for example, there is a municipal requirement that every student should engage in at least one hour per day of physical education. They start with a morning exercise before class; there is an "intermission exercise" in the middle of the morning, and other physical activities are held after school. Some schools practise "eye exercises" where student massage essential acupuncture points in order to prevent eyesight deterioration. Students also engage in all kinds of extracurricular activities in sports and the arts, where they are expected to learn organisation and leadership. Students take turns at "daily duties" in cleaning the classrooms and nearby corridors, for example. Students are also assigned teamwork in keeping the campus tidy. They are also organised to visit rural villages or deprived social groups as a matter of social or service learning. All these activities are co-ordinated by the municipal education authority.

Students are often overwhelmed by all these learning activities, both within and outside schools. This is why the national 2020 planning document calls for a "reduction of student workload." Shanghai is already much more aware of this issue than many other places in China, and good schools often refrain from holding classes during evenings and weekends, and parents do not normally press for heavier workloads.



Box 4.2 **Oriental Green Ark**

A spectacular facility established by the Shanghai municipal Education Department is an education base known as the Oriental Green Ark. This huge education park occupies more than 60 000 acres and includes activity centres, physical challenge centres, military training, museums, villas and hotels, as well as a convention centre. The villas and hotels follow the concept of a global village, with each block in the style of a particular nation. Every student in Shanghai primary and secondary schools experiences the Oriental Green Ark at least once as an organised school visit. It is interesting that many parents also send their children to the Ark through individual bookings at their own cost. Children see it as an alternative amusement park.

Compared with other societies, young people in Shanghai may be much more immersed in learning in the broadest sense of the term. The logical conclusion is that they learn more, even though what they learn and how they learn are subjects of constant debate. Critics see young people as being “fed” learning because they are seldom left on their own to learn in a way of their choice. They have little direct encounters with nature, for example, and little experience with society either. While they have learned a lot, they may not have learned how to learn. The Shanghai government is developing new policy interventions to reduce student workload and to refocus the quality of student learning experiences over quantity. Challenges from a changed and changing society maintain tension between such intense engagement and genuine learning in the broader sense.

Curriculum reforms

Shanghai has always been seen as a pioneer in education reform, with reform of the curriculum taking centre stage. Curriculum reform in Shanghai follows the general framework of national reform, described earlier. But Shanghai is often given the privilege of experimenting with reforms before they are endorsed for other parts of the nation. Since 1989, Shanghai has launched two waves of curriculum reform. Their essence has been to overcome “examination orientation” practices in schools in order to build quality education (Ding, 2010).²⁰

The first phase of curriculum reform started in 1988, with an attempt to allow students to select courses of personal interest. A curriculum comprising three blocks was established: compulsory courses, elective courses and extra-curricular activities. Accordingly, textbooks and teaching materials were produced and phased in.

Curriculum reform moved into its second phase in 1998, to integrate natural science with the humanities, the national curriculum with school-based curriculum, and knowledge acquisition with active inquiry. The purpose was to transform students from passive receivers of knowledge to active participants in learning, so as to improve their capacity for creativity and self-development and to fully achieve their potential. Traditional subjects were re-organised into eight “learning domains”: language and literature, mathematics, natural science, social sciences, technology, arts, physical education, and a practicum. Schools were encouraged to develop their own curricula specific to their individual conditions. Museums and other “youth education bases” (such as the Oriental Green Ark, Box 4.2) have now become crucial places in which the new curriculum is also implemented.

The new curriculum has three components: the *basic curriculum*, to be experienced by all students, mainly implemented through compulsory courses; the *enriched curriculum*, which aims to develop students’ potential and is realised mainly through elective courses, and *inquiry-based curriculum*, which is mainly implemented through extra-curricular activities. The inquiry-based curriculum asks students, backed up by support and guidance from teachers, to identify research topics based on their experiences. It is hoped that through independent learning and exploration, students can learn to learn, to think creatively and critically, to participate in social life and to promote social welfare. Since 2008, the new curriculum has been implemented throughout the city.

Overall, the curriculum reform involves broadening students’ learning experiences, enhancing the relevance of subjects by relating them to broader human and social issues, and concentrating on the development of “capability” rather than accumulation of information and knowledge. These are reflected in the reform of examinations as well as reform in pedagogy.

The overhaul of curriculum is supported by changes in teacher education and professional development. Over the years, teachers’ threshold qualifications have been significantly elevated. Twenty years ago, primary school teachers

were trained in teacher-training schools at the level of senior secondary schools. Junior secondary teachers received diplomas from sub-degree programmes. Less than 20 years later, all primary school teachers now must have a sub-degree diploma, and all teachers in secondary schools are degree-holders with professional certification. Many teachers have master's degrees. Shanghai was the first district in China to require CPD (continuous professional development) for teachers. Every teacher is expected to engage in 240 hours of professional development within five years.

In order to facilitate the sharing of good practices of curriculum design, development and implementation, a web-based platform²¹ was constructed and put into use in 2008. Included on the website are resources for curriculum development and learning, success stories of curriculum implementation, and research papers on teaching and learning. The draft version of Shanghai's plan for educational reform and development for 2020, which has been put out for public consultation, calls for school-based curricula and proposes a credit system at the senior secondary level to make learning more individualised and flexible.

In parallel to the curriculum reforms are changes to teaching practice. These reforms aim to change classroom reality to better facilitate student learning. One very significant change has been implemented in recent years through the slogan "return class time to students". This calls for an increase in time allocated to student activities in classes relative to teachers' lecturing. This has caused a fundamental change in the perception of a good class, which was once typified by good teaching, with well-designed presentations by the teachers. Videos of model teaching concentrated on teachers' activities. Now, model classes are filmed with two cameras, one of which records student activities. Teachers' performances are now also evaluated by the time given to student participation and how well student activities are organised. A similar slogan is "to every question there should be more than a single answer." This poses a challenge to the orthodoxy and authority of teachers over the information they teach.

These changes add up to a sea change in classroom pedagogy. The use of slogans is a Chinese tradition, and proposed changes become a campaign. The slogans are carefully crafted to capture the very essence of the proposed change and to be easily understood and followed by grassroots teachers. This is particularly powerful in the rural schools, where most theories are still foreign ideas. The use of slogans in pedagogy reform is also based on the culture of what could be called "constructive conformity" in China. That is, teachers do not mind imitating other teachers' good practices, and indeed creative practices are meant to be copied. This is very different from the meaning of creativity in, say, the United States, where practices are called creative when they are different from others.

Redesigning examinations is another crucial element of Shanghai reform. In 1985, as noted earlier, Shanghai received permission to start an independent higher education entrance examination. This was a big step forward in two senses. First, admissions to higher education are a complex annual exercise on a national scale, and setting up a separate local examination was a deviation from the uniform system. Shanghai's experiment indeed heralded a trend in exam decentralisation, which is key to localised curricula. Second, Shanghai saw public examinations (in this case the higher education entrance exam) as key in the design of any new curriculum. Moving away from the central national entrance examination allowed Shanghai to have a comprehensive platform in reforming its curriculum.

Since 2001, the entrance examination has taken the form of "3+X": the three core subjects of Chinese language, English language and mathematics, plus the "X" of any other subject(s) as required by individual institutions or faculties. The "X" component may take the form of a paper-and-pencil examination, an oral examination, a test of practical skills and so on. The content may cover one discipline, one kind of ability, or several disciplines or abilities. Individual institutions decide on the weighting of the three core subjects and the "X" component. For example, at Shanghai University for Science and Technology, the three core subjects contribute to 40% of the candidate's overall scores and the "X" component is 60%.

In 2006, Fudan University, Shanghai Jiaotong University and six vocational higher education institutions started to organise their own entrance examinations and to set their own admission requirements. The two universities admitted 578 new students through self-organised examination. In 2007, another three institutions set their own entrance examinations (Shanghai Municipal Education Commission, 2008). The overall trend and intention is to diversify higher education entrance examinations so as to reduce the pressure from a single uniform exam. To lower exam pressures further, Shanghai has moved to allow admissions based on school recommendations at both senior secondary and university entrance levels. Other selected institutions, presumably the stronger, have also been given the autonomy to set their own admission criteria and entrance examinations. More recently, students are allowed to do self-recommendation for admissions at higher levels of education.



Overcoming disparity and inequality

China has in recent years joined the international community in realising the importance of overcoming disparity and inequality in education (and indeed in society at large). This is of particular significance since success in the overall reform has been based on a break from the extreme egalitarianism that prevailed during the Cultural Revolution. The breakthrough brought about by Deng Xiaoping, architect of the reform, was partly due to the concept of “let a few become rich first.” Disparity was at that time seen as an incentive to the growth of national wealth and a cure to national poverty.

There has long been the concept of “key schools” in China. Key schools are selected by education authorities to be given additional resources and assigned better teachers. National key schools are very rare now, but provincial/municipal key schools and county/city district key schools persist. There are also key universities with privileged resources, although the term is no longer used to describe them. The key schools admit better students who then do better in terms of selection into higher-level key schools or universities. A senior secondary key school may have 100% of its graduates entering good universities, while a school at the bottom of the non-key category might not send any students to such institutions. This notion is taken for granted in a society conceived as a hierarchy, as noted earlier. Parents do not question the existence of such a system; they only think how their own children might win the competition to get into key schools.

In 1982, a national policy shift sought to remove the label of key schools at the primary level, but they still exist at junior-secondary and senior-secondary levels. Even at primary levels, “experimental” schools or schools under other labels, while lacking the title of key school, are privileged with better resources and better teachers.

Because of high demand under the key school system, it became necessary to have a highly selective public examination at the end of primary schooling to allocate students to junior secondary schools of different categories, and another public examination at the end of junior secondary schooling to allocate students to senior secondary schools. This explains the examination pressure that prevails over all sectors and all levels of the education system.

Neighbourhood attendance

In 1994, Shanghai was the first jurisdiction in China to introduce neighbourhood attendance at primary and junior secondary levels, requiring students to attend their local schools and in effect eliminating the notion of key schools at these levels. This was a challenge to society and caused some uneasiness among parents, who were bewildered that their children could no longer compete for admission to the better schools. The social pressure was so great that eventually a compromise was reached: students could choose schools in other neighbourhoods by paying a sponsorship fee. This is often known as the Chinese version of “school choice,” which was a hot issue in America. Parents see the additional fees as fair, because otherwise preferential admissions could go to parents with political power or personal connections.

Neighbourhood attendance also caused concern among teachers who were not used to teaching classes of mixed abilities. Now, however, teachers seem to be proud of being able to handle children of diverse backgrounds and different abilities, realising that diversity and disparity within schools are common features in contemporary societies. Neighbourhood attendance has allowed public examinations to be removed at the end of primary schooling, releasing primary teaching from examination pressure. As an immediate result, innovations and creativity now flourish in primary schools. Policy makers often see this as an essential factor in making Shanghai a champion of curriculum and pedagogy reforms.

Migrant children

Neighbourhood attendance also prepared the school system to face the challenges of migrant children, who became a major national problem in the late 1990s. In the 1980s, migrant workers flooded in from rural villages to work in urban areas. Most are low-wage labourers in factories, while others are contract workers on construction sites. Still others created small businesses to tap the urban market. Migrant workers have contributed immensely to China’s economic growth, but their children and their education have become a national problem.

To date, around 30 million children of school age belong to migrant families all over China. This is 20% of the entire student population at the basic education level. In other words, one in every five school children comes from a migrant family. About 20 million are with their parents in cities, but the other 10 million have been left behind in villages without parental care. Both categories pose serious educational as well as social problems and have become a major issue on the government’s agenda. They are also one of the major issues China pledged to tackle in its 2020 education plan.

Shanghai is one of the principal recipients of migrant workers because of its active industrial and commercial economies. Statistics in 2006 indicated that 80% of migrant children were of school age, and those who studied in Shanghai schools were 21.4% of the entire student population at the basic education level (Ding, 2010). Since 2002, national policy has been based on two statements (known as the policy of “Two Mainly”):²² “Education of migrant children is mainly the responsibility of the recipient city”, and “Migrant children should be educated mainly in public schools”. These policies became necessary at a time when recipient cities did not want to spend local taxpayers’ money on migrant children and when parents in public schools did not want to their own children to be mixed with migrant children. The national policy is interpreted differently in different cities.

Shanghai is among the cities that have dealt with migrant children with reason and sympathy. The city’s spectacular economic growth can be very much attributed to the contribution of migrant workers, and it followed that their children should be well treated. Interviewees in this study also gave this reason for Shanghai’s policies on migrant children’s education:

Shanghai has historically always been a city of migrants. Children of the migrants today will stay on and become *bona fide* citizens of Shanghai. How they are treated today will determine how they feel towards and contribute to the future of Shanghai.²³

An article in a recent issue of *Shanghai Education*, a very popular teachers’ magazine, argued that migrant children from rural villages would have positive effects on urban children. The migrant children brought in characteristics such as frugality and perseverance, while urban children from one-child families may be quick in mind and broad in knowledge but spoilt in their personalities. Hence the article argues for “bilateral integration” so that children of all origins can benefit from each other’s company.

In a way, Shanghai has established the notion that migrant children are “our children” and works constructively to include them in its educational development. Meanwhile, at the system level, the admission of migrant children to public schools helps solve the problem caused by the acute decline of school-age children among the permanent residents.

Strengthening weak schools

Another major undertaking in Shanghai has been to improve the school system by converting “weaker schools” to stronger schools. Since the 1980s, several rounds of school renovation attempted to ensure that schools were in sound physical condition. In the mid-1990s, the demographic decline began to show, which gave the government a good opportunity to further improve the schools (Jin, 2003). In 1999, Shanghai started a second wave of school renovation, upgrading school buildings and facilities according to a “standard programme.” A total of 1 569 schools were either re-organised or closed, accounting for three-quarters of all schools in Shanghai. A third wave of school renovation started in 2002, and one-third of junior secondary schools in Shanghai benefited. The second and third rounds included other reform measures, such as strengthening the team of teachers or selecting a strong principal.

With the improved economy, the Shanghai municipal government has been keen to improve households’ capacity to support children’s education. Since 2006, all students receiving compulsory education have been exempted from tuition and miscellaneous fees. Since 2007, all students in compulsory education have been provided with free textbooks and exercise books (Shanghai Municipal Education Commission, 2009). Although basic education is free and compulsory, the quality of schools varies, and that affects the quality of education children receive. Indeed, public schools in Shanghai have long been criticised for the disparity among them.

In order to reduce this disparity, the Shanghai government has adopted several strategies.²⁴ The first, as mentioned earlier, is *school renovation*. The government evaluates schools in terms of their infrastructure and educational quality, and then classifies them into Levels A, B, C and D. Level A schools meet the government’s standards for both infrastructure and quality, while Level D schools meet neither standard. With the decrease in the number of school-age children, quite a few Level C and D schools were closed. Others were merged into Level A or B schools or reorganised in the second and third waves of renovation. When the third renovation wave ended in 2005, Level C and D schools disappeared and all public schools became Level A or B. In junior secondary education, 64% of public schools are Level A.

The second strategy is known as *financial transfer payment*, which is the mobilisation of public funding with positive discrimination. Statistics showed that per-student expenditure in rural areas was only 50% to 60% of that in the city.



Rural schools also had far lower capital spending than downtown schools on average (Shanghai Municipal Education Commission, 2004). The strategy was then to set a minimum standard for per-student public expenditure at different levels, and to transfer public funds to the deprived areas. Between 2004 and 2008, over USD 500 million was transferred to rural schools to help them build new facilities and laboratories, update older ones, purchase books and audiovisual materials, and increase teacher salaries.

The third strategy is to *transfer teachers* from urban to rural areas and *vice versa*. It was often difficult for rural schools to recruit teachers, and they also suffered from high teacher turnover. For example, it was reported that in Qingpu District, a rural area, 160 experienced teachers in relatively poor junior secondary schools resigned between 1997 and 2002.²⁵ To reverse the situation, the government transferred a considerable number of teachers from urban public schools to rural schools, along with some outstanding urban principals (Shanghai Municipal Education Commission, 2008). Meanwhile, young and middle-aged principals and teachers from rural schools were transferred to urban schools. They are expected to return to the rural schools to enrich them with their new urban experiences.

The fourth strategy is to *pair off* urban districts with rural districts. In 2005, the educational authorities of nine urban districts signed three-year agreements with educational authorities of nine rural districts. The authorities exchange and discuss their educational development plans and join hands to deal with problems such as teachers' capacity building. Teachers' Professional Development Institutes affiliated to both authorities share their curricula, teaching materials and good practices. Moreover, some 91 schools paired up as sister schools, and a substantial number of teachers undertook exchange programmes among the sister schools (Shanghai Municipal Education Commission, 2009). The first round of the three-year "pairing off" programme ended in 2008, and the second round is under way.

The fifth strategy is relatively new but has gained increasing attention. It is called *commissioned administration*, a kind of school custody programme in which the government commissions "good" public schools to take over the administration of "weak" ones. Under this scheme, the "good" public school appoints its experienced leader (such as the deputy principal) to be the principal of the "weak" school and sends a team of experienced teachers to lead in teaching. It is believed that the ethos, management style and teaching methods of the good schools can in this way be transferred to the poorer school.

In 2007, the Shanghai municipal government asked 10 good schools in downtown and other educational intermediary agencies to take charge of 20 schools providing compulsory education in 10 rural districts and counties. The good schools/agencies and the rural schools signed a two-year contract that required the former to send senior administrators and experienced teachers to the latter. The city government bears the cost of the partnership (Shanghai Municipal Education Commission, 2008); Shanghai Municipal Education Commission, 2009). Such an arrangement not only benefits the poor schools; it also gives the good schools more room to promote their teachers.²⁶

The sixth strategy is to establish a *consortium* of schools, where strong and weak schools, old and new, public and private are grouped into a consortium or cluster, with one strong school at the core (Box 4.3).

Box 4.3 The Qibao Education Group

Qibao is a suburb of Shanghai. Its secondary school, established in 1947, has become known for the humanist values that permeate all aspects of school life. It is also known for the percentage of its graduates admitted to good universities. Some graduates from Qibao have been directly admitted to Harvard University. Since the 1960s, Qibao Secondary School has been identified as an "experimental school" or a "demonstration school" because of its effective leadership, and it has been famous in the realms of science education, sports, arts and music, and technology. Under the leadership of Principal Qiu Zhonghai, the Qibao Education Group was established in 2005 with Qibao Secondary School as the core. To date it hosts six schools. Three other public schools were renamed and "adopted" by Qibao, while two private secondary schools, one junior and one senior, were newly established by the group. All six schools have demonstrated continuous improvement since becoming members of the Qibao Group.


Source: A focus group discussion with administrators of the group, 2010.

Achievements and challenges in Shanghai's education system

External observers might see the development and practice of education in Shanghai as very effective. Shanghai participated in PISA 2009 and achieved very high average results overall (Table 4.1, OECD, 2010). Although these results were not yet available at the time of this study, there was consensus among all those interviewed (see list at end of chapter) on some positive developments including some improvements on local measurements of student learning. Local experts believe that this is evidence of successful reforms, whereby students are now exposed to a much broader knowledge base and are trained to integrate their knowledge and tackle real-life problems. Students have also become used to identifying questions of interest to themselves, and to make open-ended explorations. All these changes are markedly different from the traditional Chinese pattern in which students learn subjects by heart and regurgitate such knowledge in examinations.

Table 4.1 Shanghai-China's mean scores on reading, mathematics and science scales in PISA

	PISA 2000	PISA 2003	PISA 2006	PISA 2009
	Mean score	Mean score	Mean score	Mean score
Reading				556
Mathematics				600
Science				575

Source: OECD (2010), *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science (Volume I)*, OECD Publishing.
 StatLink  <http://dx.doi.org/10.1787/888932366674>

However, none of the interviewees was satisfied with the quality of Shanghai's education system. As one experienced educator insightfully expressed it, the changes in student learning were brought about chiefly by organised and structured top-down reforms, implemented either through examinations or policy shifts.²⁷ Such measures may be well designed, but students are still not given much autonomy in their study. Schools with outstanding characteristics are still rare, and examination pressure still prevails.

There is little expectation of any fundamental change in the near future, given that in comparison to injustice from abuses of power or payments of money, examination scores are seen to be "scientific," "reliable" and hence "fair." However, the dictates of the examinations have left students with little time and room for learning on their own. "There is an opportunity cost in terms of time and space," said the interviewee. "Students grow within narrow margins" and are not fully prepared for their lives and work in the future. This is seen as a deep crisis, exacerbated by the reality of single-child families.

HONG KONG'S EDUCATION SYSTEM: ONE COUNTRY, TWO SYSTEMS

Hong Kong was originally a small fishing island that was ceded to the British government in 1842 after China's defeat in the Sino-British War ("The Opium War"). In further treaties in the late 19th century, China also lost the Kowloon Peninsula and the New Territories to Britain on a 99-year lease. Hong Kong maintained its colonial status at the end of the Second World War when all other "unequal treaties" with China were terminated. In 1997 the 99-year lease ended. Following a surprise suggestion from Deng Xiaoping to British Prime Minister Margaret Thatcher, Hong Kong's sovereignty was returned to China under the "one country, two systems" notion.

Under this arrangement, China resumed its sovereignty over Hong Kong, but Hong Kong remained a separate jurisdiction, governed by a "Basic Law" and enjoying autonomy in all areas except military defence and diplomatic relations. As a Special Administrative Region of China (SAR), Hong Kong maintains an independent legislature, with a distinct currency and policies of its own, independent from the national government in Beijing. In the realm of education, for example, Hong Kong maintains its own system of education under an Education Bureau (EDB) which reports only to the Hong Kong government and Hong Kong taxpayers, without direct relations with the Ministry of Education in Beijing. Meanwhile, Hong Kong is free to engage in bilateral relations with other jurisdictions and assume membership in other international organisations for finance, commercial, education, culture and so forth. Hong Kong's education system has been and remains quite distinct from that of the rest of China, with a unique history, structure and reform trajectory.

Hong Kong has a population of around 7 million living in a small area of 1 000 square kilometres. Its average GDP per capita is often above USD 42 000, bringing it within the world's top ten richest nations on most lists.²⁸ The service sector of the economy accounts for 92% of Hong Kong's economic growth. Across the border on the Chinese mainland, an estimated 80 million people work for Hong Kong investors.



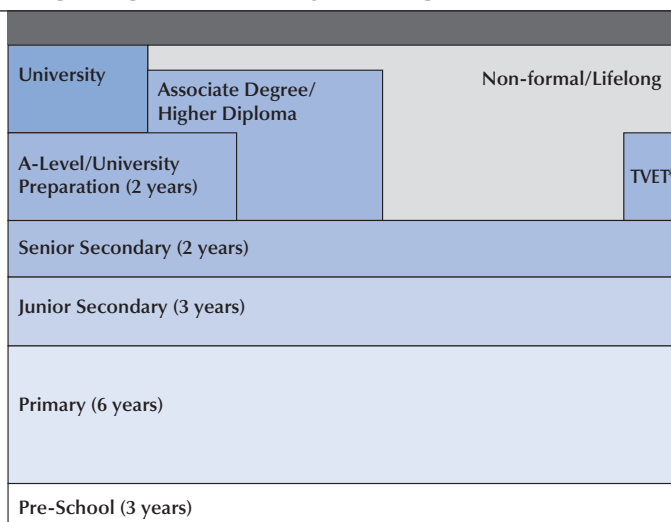
The population is predominantly ethnic Chinese. Caucasians from Western countries living in Hong Kong are small in number but mostly work for influential multinationals. The ethnic Chinese derive from immigrations at different periods of history. Increasingly, they come from mainland China, either as immigrants who stay on or as tourists or migrants who reside in Hong Kong temporarily. Small but significant portions of the population are from Indonesia and the Philippines, most with temporary permits to work as domestic helpers. Traditionally, residents of South Asian origin include businessmen from India, manual or service workers from Pakistan and former Gurkhas from Nepal. Hong Kong residents, both men and women, have life expectancies that are among the longest in the world.

Hong Kong hosts an education system comprising around 1 100 schools. However, the number is shrinking because of dramatic declines in population. Each age cohort has declined from around 9 000 members in the early 1980s to around 4 000 in recent years. The fertility rate is around 0.9 children per woman, far less than the “replacement” level of 2.1 children per woman.

Hong Kong’s education system is very much part of the British colonial legacy. The school system still maintains the British approach of five-year secondary schooling (Forms 1-5), which ends with a Certificate of Education Examination, the crucial certification for a student’s future. The certificate is a gateway for all young people, either to work or further study. It is followed by a two-year matriculation education (known as Forms 6 and 7) in preparation for the A-Level examinations, which aim at admissions to higher education (Figure 4.2a). However, this system is facing an overhaul, as we will discuss below.

■ Figure 4.2a ■

Hong Kong’s education system organisation until 2012



* Technical and Vocational Education and Training.

The post-war years: The foundations of an elitist system

Whilst the school system on the Chinese mainland only began after 1905 with the abolition of the Civil Examinations, Hong Kong already had schools in place long before that and they were not influenced by changes on the mainland. The leading elite Hong Kong schools followed the model of the British “public” (*i.e.*, private) schools. Nonetheless, the Hong Kong population has always been predominantly Chinese, and the schools have largely been adapted to the Chinese culture. This was also aided by British colonial localisation policies, particularly after the Second World War. Hence, it is fair to say that the Hong Kong education system is very much a hybrid of Chinese culture and British traditions and schools enjoy the best of both worlds.

Hong Kong’s education remained rather elitist even after the Second World War and until the 1960s. There was only one university, the University of Hong Kong, which took in only 100 to 200 students each year. A rather stringent primary school examination later evolved into the Secondary Schools Entrance Examination, so that the traditional examination pressure prevailed at the primary level, even though primary schooling was already widespread. The post-war baby boom caused school attendance to soar, but secondary schools remained very selective.

There have never been many government schools in Hong Kong. However, since the 1950s, the government has been subsidising non-government school-sponsoring bodies (mainly churches, charitable organisations and other associations or agencies) and with them formed a public school system. Many such schools once operated under marginal conditions (such as on the rooftops of public housing), but were given land and buildings in the 1970s and 1980s. Now they enjoy state-of-the-art facilities. In brief, the Hong Kong government provides most of the capital cost and almost the full recurrent cost of public schools, but expects the non-government sponsoring bodies to run them. The sponsoring bodies abide by a Code of Aid, a kind of contractual agreement with the government. In a way, the “aided schools” are near to the US concept of charter schools, except that the Code of Aid governs operational procedures rather than performance.

Hong Kong still has quite a few elite schools whose graduates are favoured candidates for admission to the best universities in the world. It is notable that such students are not necessarily from wealthy families. Hong Kong strongly exemplifies the Chinese belief that young people achieve because of hard work, regardless of family background. However, its schools are not only strong in academic achievements; often they are also champions in sports and music, and most graduates have become leaders in higher education, mainly because of their vibrant and autonomous student organisations. The Hong Kong schools breed leaders.

Private schools, many of them for-profit, mushroomed in the 1970s to respond to the shortage of school places. Such schools tended to offer low-quality education and as a result gradually disappeared during the 1980s because of expansion in the public sector. Since the turn of the century, however, a new breed of elite private schools has been established as international schools, though admitting mainly local students.

The push for universal education: 1960s onwards

In 1965, new legislation introduced compulsory six-year primary education. Actual primary enrolment was already near 100%.²⁹ This was followed by heated debate about whether to offer three years of free schooling after the primary level. There was tension between government expansion plans and escalating social aspirations for more education. The tug-of-war was about the speed of expansion. Government plans, bold as they were, attempted to maintain a pyramidal structure in response to the manpower needs of the manufacturing industrial economy, the main thrust of Hong Kong’s economic “miracle” in the 1970s and 1980s. That is, the government maintained a very small percentage in the enrolment of higher education, while steadily expanding senior secondary education and providing universal education for primary and junior secondary. Meanwhile, social equity goals emerged in the 1970s, leading to calls for universal secondary education. Due to international pressures, mainly from the General Agreement on Tariffs and Trade (GATT), Hong Kong introduced nine-year compulsory education in 1978.³⁰

The next step was to abolish the Secondary Schools Entrance Examination. This could be regarded as an historic first step to release the schools from formal public examinations, at least at the primary level. However, schools remain different in their standards. The replacement for exams as placement mechanisms was a “scientific” approach that combined school internal assessments, an aptitude test to scale the internal assessments across schools, a classification of students into five capacity bands, and parental choice after random picks by computers. In the end, however, the best students were still admitted to the best schools. The public examination was gone, but schools still managed to create all kinds of tests as a tangible yardstick for performance. Drilling survived, and the situation did not change until the comprehensive reform discussed below.

The aspiration for education did not stop at the introduction of nine-year compulsory schooling. It was a textbook example of how increased supply led to increased demand. Without much intervention from the government, enrolment in secondary education was again near universal by the end of the 1980s. This was augmented by a rather sophisticated system of vocational education (programmes for apprenticeship, craftsmen and technicians) with the milestone establishment of the Vocational Training Council in 1982.

The next battle was for higher education expansion. Until the early 1980s, Hong Kong maintained a small gross enrolment ratio of 1-2%, with a 3% increment in the intake each year. Local enrolments were limited to two universities, and those who could afford it would go abroad to study in overseas institutions. There were several attempts to expand access to higher education, but government determination to do so came only in 1988. That year saw an exodus of emigrants because of the forthcoming handover in sovereignty to China, as well as other political change. This situation prompted the Hong Kong government to expand its formal higher education intake to 18% of the eligible population. Another tug-of-war ensued between government policies and social aspirations, now focused on this tertiary education level. By the early 1990s, however, the 18% target was achieved.



The 1990s to the present day: The movement towards comprehensive education reform

From the late 1990s the discourse in Hong Kong shifted from one of expansion to one of “what should education offer.” A comprehensive education reform began in 1999. This initiative emerged at a time of rather comprehensive dissatisfaction with the education system. Parents were not satisfied with the education schools were providing and were often upset by unpleasant experiences their children were undergoing, particularly in the newer public schools. For example, children were working on homework until almost midnight, and most of what they did was little more than regurgitation. They subjected their children, unwillingly, to tough competition in order to move to better schools. Those who could afford it sent their children to international schools that were liberal in their philosophies and where children seemed happier. Teachers in turn were dissatisfied with their students, thinking standards and motivation were declining. Employers were also dissatisfied with the quality and calibre of graduates from local institutions, finding them less prepared to engage in an increasingly complex workplace. They were turning to recruiting returnees from studying overseas.

In hindsight, this dissatisfaction can be explained by a few crucial factors. First, schools were unprepared for an intake that suddenly changed from a select few to almost everybody. The system now had greater student “mixability”, but teachers still maintained approaches generally used for teaching the elite, in which only the capable students would benefit and the slower students were abandoned. Second, the sense of responsibility changed following the introduction of compulsory education. While students could be blamed for performing poorly in schools they had struggled to enter, when education became compulsory blame was laid on schools and teachers, even though they had been badly prepared. Third, although there had been successful reforms in curriculum and pedagogy (such as the introduction of integrated science in junior secondary schools and the change to an “activities approach” in primary classes, both in the 1970s), the general environment still favoured a conventional curriculum and didactic teaching. This was reinforced by the highly competitive public examinations and keen selection process for higher education. Fourth, and perhaps most fundamentally, employment patterns had undergone major changes. While young people with only a nine-year education could previously easily find employment as blue-collar unskilled labourers in manufacturing plants, such factories had mostly moved across the border into southern China where labour costs were much cheaper (thanks to China’s open policies). The corresponding expansion of Hong Kong’s service sector was accompanied by an expectation of higher knowledge in its labour force.

In sum, at the end of the 20th century Hong Kong’s education system faced a multitude of structural crises, partly due to the efforts to accommodate more children and partly due to changes in society’s expectations for education.

Seen from this perspective, the apparent failure of the system at that time was less a problem of government incompetence or ill-management than a demonstration of the widening gap between a rapidly changing society and the static approaches to education. The solution was not to do more and better of what schools had been doing, but to put education in a different framework. That was the starting point for Hong Kong’s comprehensive education reform which began in 1999 and continues today.

The reform was led by the Education Commission, the overseeing advisory body in education policies. The Commission’s core comprised four people: the Chair, who was head of a major international bank; a university professor with world-wide experience; an insightful school principal; and the Permanent Secretary for Education, who was a committed reformer.

The reform started with a “mobilisation phase”. Some 800 community leaders were invited to a major gathering to air their concerns. The meeting started with a presentation titled “Questioning Education,” which asked over 100 questions with no answers. Participants assumed the roles of parents, employers and corporate citizens, and expressed such anger that they fuelled the Education Commission with determination to never go back to the old ways. A subsequent campaign encouraged every school to establish a paper “tree of hope” onto which students hung tags with statements beginning, “I have a hope: Education should be ...”

The design phase followed. A document that asked questions about the “Aims of Education” was published. It described recent changes in society and proposed a list of fresh aims for education. Upon public invitation, more than 40 000 suggestions were submitted. It became a community campaign and greatly enriched the Education Commission’s understanding of how society was changing and its implications for education.

Meanwhile, as part of the learning process, the Education Commission carried out a series of innovative consultations to aid their decision making. Major professional bodies were interviewed to solicit their views. A typical example

was the Society of Accountants, which suggested that the best action for a university to take towards accounting was to “not teach it”.³¹ Another study looked at manpower aspirations among small and medium enterprises (SMEs) that were becoming the backbone of Hong Kong’s economy. This was a genuine learning process for the Education Commission, which was discovering that fundamental changes were occurring in society and the workplace, but that the general design for education had not kept pace.


The Education Commission also studied education reform in other systems, as well as patterns of lifelong learning in OECD countries,³² and supply and demand in the local market for lifelong learning. The Commission looked at ways to retrain the newly unemployed and visited trade unions in order to understand the trends of employment in various industries.

By the end of this stage, it was relatively clear that the reform, despite its comprehensive nature, would have to concentrate on three aspects: the system’s structure, its curriculum and assessments. Subcommittees were established to design these different aspects of the reform.

In 2001, as a first step in the reform, public assessments after primary schooling were abolished with immediate effect. This caused some confusion among school principals and teachers, who had to seek new frames of reference. However, the move has proved critical to primary schools, allowing teachers to develop more relevant school-based learning activities and changing the general discourse in primary schools from one of examinations and drills to one of learning. As a result, in less than a decade, secondary schools are seeing more active learners coming out of primary schools, with improvements in student performance as assessed in consecutive international comparisons in reading literacy. For example, in PIRLS (Progress in International Reading Literacy Study), Hong Kong’s primary schoolchildren’s performance in reading literacy was elevated from 14th in 2001 to 2nd in 2006 in the international rankings (Mullis *et al.*, 2006). At the secondary school level, PISA measures learning outcomes for 15 year-olds, showing fairly consistent and high results across the three skills tested, including reading (Table 4.2; OECD, 2010).

Table 4.2 Hong Kong-China’s mean scores on reading, mathematics and science scales in PISA

	PISA 2000	PISA 2003	PISA 2006	PISA 2009
	Mean score	Mean score	Mean score	Mean score
Reading	525	510	536	533
Mathematics		550	547	555
Science			542	549

Source: OECD (2010), *PISA 2009 Volume I, What Students Know and Can Do: Student Performance in Reading, Mathematics and Science*, OECD Publishing.
StatLink  <http://dx.doi.org/10.1787/888932366674>

In 2002, a crucial reform document – *Learning to Learn* – was published (Curriculum Development Institute, 2001). The title carries two major messages: the change of focus from “teaching” to “learning,” and a new emphasis on the process of learning rather than memorising facts. This document, still the basic reference for the entire reform effort, was informed by the contemporary theories of learning. In layman’s language, these theories hold that:³³

- Learning is the active construction of knowledge by the learner.
- Learning is a process, achieved through activities called learning experiences.
- Similar experiences may lead to the construction of different kinds of knowledge, *i.e.* to people learning differently.
- Learning is for understanding.
- Understanding is demonstrated by the effective application of the knowledge thus constructed.
- Effective learning experiences often require integration of knowledge.
- Learning is therefore best in real-life experiences with actual effects.
- Learning is also a social action, best achieved in groups.
- Human learning is motivated by a sense of improvement.

This is just a synopsis of the general principles of theories of constructive learning. The reform exercise in Hong Kong incorporates the common denominator of theories about learning, rather than committing itself to any particular school of “constructivism.”



The consequences of reform for secondary school and higher education

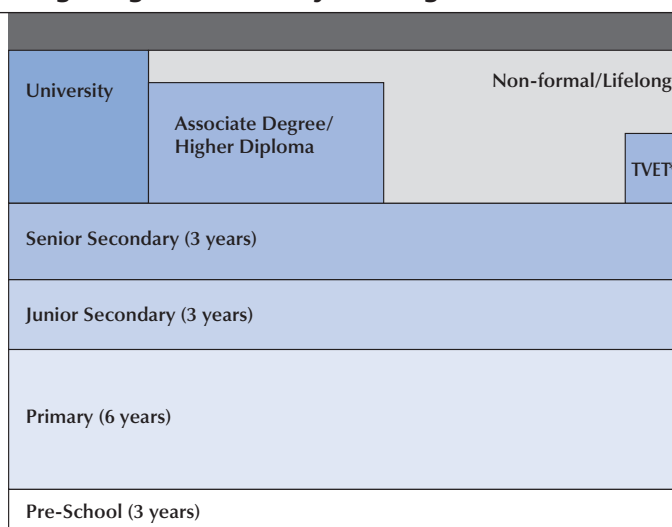
Although the change in curriculum was at all levels, the consequences have been most noticeable at senior secondary level:

- The secondary school curriculum is designed according to what learning experiences students need, rather than being guided by manpower needs in the economy.
- The curriculum is decided in secondary schools before seeking endorsement from universities. The latter's concern is to select the best students, while the curriculum reform aims for lifelong benefits for students.
- The secondary school curriculum is framed around eight key learning areas (KLA), rather than "subjects": Chinese Language, English Language, Mathematics, Science and Technology, Social Science and Humanities, Sports and Arts, Applied Learning (to allow students to gain real-life workplace experiences) and Other Learning Experiences (including service learning, workplace visits and overseas experiences). The latter two are new to both teachers and schools.
- A long process of negotiation with higher education institutions resulted in a compromise in which secondary school students going on to university are expected to perform in four areas: Chinese, English, Mathematics, and a new subject called Liberal Studies (see next point). Institutions and programmes may also ask for one other "subject." This reflects a change among higher education institutions from basing their student selections on the number of subjects studied (as if that would guarantee better academic performance) to understanding the benefit of requiring less and allowing broader learning experiences among their candidates.
- Liberal Studies has introduced a new area of assessment in secondary education in Hong Kong: a learning experience with timetabled slots and no syllabus – only broad topics. Assessment is meant to be flexible. In effect, teachers allow students to design their own learning schemes in which they rely mostly on current affairs and non-textbook information, and develop high-order or critical thinking. This includes asking sensible questions; finding directions for analysis, synthesis and conceptualisation; and proposing hypotheses or theories.

All these overhauls to the curriculum are carried out in the context of structural change to the school system, where junior-secondary, senior-secondary and higher education will shift from 5 years + 2 years + 3 years (following the British model) to 3 years + 3 years + 4 years, so that achieving a bachelor's degree will now take four years instead of three (Figure 4.2b).

■ Figure 4.2b ■

Hong Kong's education system organisation after 2012



* Technical and Vocational Education and Training.

The focus in higher education now is how to make the best use of the additional year in the new system. Almost all institutions have decided not to extend specialised studies in the additional year but to offer alternative learning experiences, following the spirit of the reform in secondary curricula. Such alternative learning experiences include a new common core curriculum, all kinds of experiential learning and expansion of overseas exchanges.

It is conceivable that after 2012, the higher education scene will be very different. After years of discussion and design, the New Senior Secondary (NSS) curriculum was launched towards the end of 2009 in anticipation of a new public examination in 2012, when university entrance requirements will change accordingly. As this chapter is being written, both secondary and higher education institutions are busy preparing for the change.

Critical to the reform is construction of a new assessment system to facilitate the changes in curriculum and pedagogy. This is underway, and faces the dual task of reflecting the new philosophy of learning and gaining international recognition for university admissions.

Key factors in managing the reform

The Hong Kong education reform has benefited from a long lead time, well-designed preparations and good management of perceptions.

Preparation

Starting in 2005, four years before implementation of the new curriculum, the government organised meticulous activities to prepare schools for it. In a typical exercise, representatives from 12 schools would gather in a hotel for at least one whole-day “retreat”. Each delegation would have six members: the supervisor, one school board member, the principal, the vice-principal and two senior teachers. The retreat usually started with a talk from a prominent community leader on how “society has changed”. The Curriculum Development Institute then outlined the curriculum reform, and each school delegation was asked to discuss their initial strategies for implementing it. The school groups then exchanged views.

Forty-five such sessions were held and all schools were covered. The government then went on to do similar training sessions with middle managers, such as subject department heads. Such perception-management exercises have eased schools into the changes, allowed them to develop ownership of the reforms, and minimised unnecessary resistance during the long reform process. This was essential given that the increased workload and disturbance for schools were by no means trivial. The bulk of preparation for the reform stayed with the schools. The reform could be seen as a combination of centralised design, school-based implementation and professional support.

Managing perceptions

Another crucial factor has been the inclusion of the media in the entire process. At the early stages of designing the reform, seminars were held for reporters on the fundamental principles of the reform philosophy. There were constant interactions with chief editors of the major media to involve them in engaging the public in the reform. However, since the process has already taken 11 years, changes in personnel both in government and the media have required a special effort to sustain the relationships.

Media relations are only one aspect of “perception management” for the reform. Through the years, despite the different reform phases, consistent themes have been *i)* societal change; and *ii)* concentration on student learning. In the earlier years of consultation and design, many documents started with the phrase “Society has changed!” People from all walks of life contributed to the theme. Meanwhile, emphasis on student learning and sustained discussions continuously enriched that theme. Numerous seminars and conferences were held on various aspects of education, but these two themes remained constant.

However, there is no uniform model of reform implementation. Indeed, its very core was respect for individual needs, and hence the evolution of schools into more autonomous entities. Under the general theme, and with the pulling force of the public and university entrance exams, schools have developed rather diverse approaches to implementing the reform. Nonetheless, because of the change led by the reform, schools across the board have developed their own mechanisms of collective decision making and division of labour which respect their individual school cultures.

ACHIEVEMENTS AND CHALLENGES IN HONG KONG’S EDUCATION SYSTEM

The Hong Kong education system has been reformed several times, but people tended to shun the word “reform” until the most recent overhaul. Overall, the Hong Kong government is known for its philosophy of positive non-intervention, although that has often been challenged in recent years. In the two decades after the war, the Hong Kong government did not intervene in the school system beyond providing subsidies. Even in later years, when government action



in developing and reforming education became significant, the general understanding remained that government intervention should be minimal. This philosophy could be called the “governmentality” of Hong Kong, to use Foucault’s term.³⁴ This is fundamentally different from other jurisdictions where governments see themselves as the comprehensive controllers of all things happening in schools. However, the notion is very much challenged by critics who not only do not believe in the concept but also doubt whether it is actually practised by the Hong Kong government. However, the vaguer notion of “small government, great market” is still something that Hong Kong honours.

The philosophy of “positive non-intervention” becomes a challenge because Hong Kong celebrates school autonomy and denounces anything that would downplay school-based endeavours. The result is great disparity among its schools. Another consequence is that unlike practices in Shanghai and Singapore, where weaker schools are often the focus of attention and measures are taken to strengthen them, Hong Kong is reluctant even to rank schools. The result has been that some public schools receive standard public funding yet deliver sub-standard educational services. Parents see this as unfair. Changing the situation may not be straightforward, however, because it entails a different kind of accountability to allow the government to actively intervene.

Nevertheless, Hong Kong’s comprehensive reform is succeeding because of its strong rationale: fundamental change in society requires new ways of looking at human learning. The reform challenges the very basics of student learning and how such learning can best be achieved.

LESSONS FROM SHANGHAI AND HONG KONG

Shanghai and Hong Kong represent two different approaches to education, which makes it worthwhile to look at them separately. Yet despite the differences, the students of both cities consistently perform well in international comparisons, as the PISA results testify. It is interesting to compare some of the common features of the two cities: they share a cultural heritage that treasures education, yet their students suffer from tremendous examination pressure. They share a colonial past, although colonial rule in Hong Kong lasted much longer. Both are major metropolitan centres in China, and indeed in Asia, and both prosper because of the vibrant cultures produced by highly-educated citizens.

However, the cities have followed very different development paths over the past six decades. Shanghai became a major industrial centre under the government of the People’s Republic, and later, at the opening of China, moved on to become the city with the most remarkable development in the service sector. Before 1997, Hong Kong remained outside China, and hence was relatively immune from its political fluctuations. It hosts the country’s freest market and has become the centre of finance and management for the whole of Asia.

Both societies felt the need for fundamental reforms of their education almost at the same time. The reform in Shanghai was part of a national undertaking. The reform in Hong Kong was, however, due to specific needs within the local system.

Shanghai belongs to an organised society and approached education reform in an organised way. It would be inaccurate to describe the Shanghai reform as top-down, because unmistakable and remarkable initiatives emerged from the grassroots. However, the municipal government did not only design the reform but also effectively intervened in the process, for example in running schools and improving teaching.

Hong Kong is almost the opposite. Its reform provides schools with a platform, supports them with resources and modifies the public examination as well as university admissions, but leaves the process of reform to the schools. Teachers may find this difficult because changes in the curriculum and examinations have made their familiar paths invalid. But the reform has pushed schools and teachers to take a professional stand, exercise professional autonomy and adapt the changes to best fit their respective student bodies.

Hence, reform in the two cities has given us a very good opportunity to observe two systems of education, both strong in international comparisons and assessments, to showcase a whole spectrum of possibilities.

This section discusses factors not analysed in the preceding sections because they are less explicit and are largely taken for granted by the Chinese themselves, but very important for those who might be interested in learning from the Chinese experience.

▪ Building legitimacy

Both Shanghai and Hong Kong aim high in their educational ambitions, both as a systemic target goal and to meet individual aspirations. They both use statements about education to guide their reforms, which take a moralistic

approach. In the 1990s, Shanghai used the slogan of “first class city” and added “first class city, first class education”. Although the definition of “first class” remains vague, the concept drives the development of education and keeps education high on the policy agenda.

Hong Kong has always felt insecure in international competitions, and much of its competitive edge is being challenged by mainland China and by other jurisdictions in the vicinity, such as Singapore, Malaysia, and even Macao. Hong Kong has identified “six pillars” for its further development, and building an “education hub” is one of them.³⁵

The sustained emphasis on education carried in these statements attracts the attention and support of the entire society. It underpins the allocation of substantial government resources to education and helps mobilise community resources. And as good education cannot be achieved only by teachers, the statement is an appeal to support from all parts of society. In other words, a consistent continuous movement creates and reinforces the legitimacy of educational development.

A recent example is China’s *Outline of the Medium and Long Term Plan for Development and Reform of Education* (Ministry of Education of the PRC, 2010b), a blueprint for education in 2020 and perhaps beyond. The initial “consultation” draft, published in February 2010, took more than 18 months to produce. The process involved thousands of professionals and experts and more than 23 000 seminars and forums for brainstorming, and was accompanied by technical reports totalling more than five million words. It received 2.1 million submissions from all walks of society.

After the consultation draft launch in February, further discussion and revisions included provisional plans for interpretation and implementation. The exercise was chaired by Prime Minister Wen Jiabao and went through the State Council and then received endorsement from the Central Committee of the Chinese Communist Party and eventually the Politbureau, just to make sure of its high priority in the political arena. Such a strong effort in legitimacy-building is unusual, but will guarantee that the educational reform movement will carry huge momentum.

However, legitimacy means very different things in other societies and systems. There are diverse ways that governments can build and enhance the legitimacy of their policies. While the approaches in Shanghai and Hong Kong may not apply to other societies, the attention they gave to building legitimacy for education is of crucial importance.

▪ Reform to break ranks with tradition

It is difficult to say which of the factors observed are due to cultural heritage and which are due to policy interventions and practices. They are intertwined. However, in both Shanghai and Hong Kong, deep cultural influences in values surrounding education (such as the emphasis on exams) have been perceived as problems and have provoked a reaction in order to modernise the system: moving from elite to massive popular education, from emphasis on teaching to emphasis on learning, from fact memorisation to development of learning capacities, and from economic needs to individual needs. In both cases, the change in the nature and orientation of the entire education system involves struggles against the culture.

Hence, if we really want to understand anything useful from the two systems in Shanghai and Hong Kong, the first is the sense of *reform* as a value. Both Shanghai and Hong Kong have resorted to fundamental and comprehensive reforms in education, and without much mutual communication they started almost at the same time. This sense of *reform* is also shared by Singapore (Chapter 7), which started its comprehensive education reforms in the late 1990s. It was also the intention of the reforms in Japan (Chapter 6) and South Korea³⁶ in the mid-1980s. The degree of success in these reforms varies, but intolerance of the ill effects of cultural heritage was a common factor.

▪ Root and branch reform versus superficial improvement

These experiences show us that reform is not equivalent to improvement. “Improvement” means doing what the system has been doing all along, but more and better. “Reform” involves paradigm shifts. In other words, the notion of a *reform* entails an awareness that further development of education is not only a matter of remedying perceived shortcomings; it is an understanding that more fundamental issues exist where education has to catch up with changes in society. Without such an understanding, any “improvement” of the system and practices only reinforces what might have gone wrong. This is perhaps the problem with education policies in many other systems. Often, worries surround students’ under-performance in visible areas such as language and mathematics but pay no attention to the fact that the entire curriculum and pedagogy could be obsolete. “Improvement” would then mean the repetition and reinforcement of obsolete approaches to education.

So the legitimate questions a country could ask itself are: *Education for all, but for what purpose? Quality assurance in education, but what quality is expected?*



▪ The importance of instruction for learning

A key factor behind the accomplishment of the two cities' systems is that they took *learning* as the core concern in their educational reforms. It might sound odd that we should remind educators and policy-makers that learning should be the core business of education. However, reforms in some other systems emphasise systemic planning or finance, school management or accountability, without actually looking at the causes, environments and processes of student learning. It is easy to forget that structure, policy, standards, finance and so on make no difference at all unless they affect the instruction that students get and what they ultimately learn. In this sense, both systems are to be congratulated for moving away from the tradition in which education (based on examination preparation) is reaffirmed without actually understanding the process of learning.

The core position of *learning* comes into play only when one understands how the changes in society and the economy affect the function of education. In a typical industrial society, the prime function of education is to prepare manpower and provide the relevant credentials. Once in the workplace, individuals are protected by orders, procedures, rules and regulations, regardless of their personal knowledge and characteristics. This function is now diminishing as the pyramidal structure collapses, replaced by small work units where individuals have to face clients, to solve problems, to design products or solutions, to endure risks and to face moral and ethical dilemmas. Knowledge and personality are of prime importance, and education has to prepare young people for this.

It is noticeable that in both Shanghai and Hong Kong, the attention to learning is not so much a matter of puritan educational ideals but rather an awakening to the future needs of society. Attention to social change and attention to learning are two sides of the same coin. Hence, to reinforce the point made in the last section, genuine reform in education has to start with an analysis of society and its changes.

By the same token, both systems have made tremendous efforts to understand human learning. This includes *i*) a body of scholars concentrating on the “sciences of learning”; *ii*) a framework based on learning that shapes the curriculum; *iii*) professional discussions among educators in the form of debates, seminars, forums, conferences and experiments, where theories of learning are interpreted and translated into grassroots practices; *iv*) effective methods of dissemination (such as slogans in Shanghai) among grassroots teachers; and *v*) perception management to convince parents and the media of the value of the changes. All these dimensions have to be strategically coordinated and synchronised, and this in turn requires champions who are committed to the concepts.

Because of the usual confusion between learning, study and education, it is often essential to roll out the education reforms in phases. The beauty of a campaign is that there are milestones and phased targets, so that reform activities do not deteriorate in bureaucratic hands that might turn them into administrative routines. This could also explain many failures of education reform elsewhere which, despite a dramatic start, quickly become conventional.

▪ Reform that looks at the whole system and the whole student

Both Shanghai and Hong Kong have engaged in comprehensive approaches to education reform.

Reforms in the two cities do not concentrate only on certain aspects of education. Students are complex human beings, and the improvement in their educational achievement can be accomplished only when all the complex contextual factors are considered and changed. The reforms perceived education as the development of the student as a whole. Students' academic achievements are not separate from the other aspects of their personal development physical, cultural, spiritual, and so on. Extra-curricular experiences, for example, are treated in both systems as an essential element of students' comprehensive learning experiences and holistic development.

The reforms also try to mobilise all sectors of society and are seen as an undertaking that concerns everyone. As mentioned earlier, they started with different frameworks: The Shanghai reform was launched as “first-rate city, first-rate education” and regarded education as part of a comprehensive aim of building a world-class city. Education reform was sold as a way to increase Shanghai's competitiveness in the global arena. The Hong Kong reform started with the awareness that “society has changed” and young people had to be prepared for a totally new society and precarious future developments. But both societies positioned education as a core element in the city's future. Hence, the reforms not only received priority consideration on the governments' agenda, but all sectors of society are expected to participate and give support.

▪ A capable centre with authority and legitimacy to act

Decentralisation is the overwhelming focus for the current literature on education planning and governance, but the subject may deserve a more nuanced look. Without suggesting that centralisation is a virtue, finding a balance between central and local control, or choosing a degree of decentralisation, is perhaps something all governments

must handle carefully. Education is no exception. Such a balance is perhaps contingent on the specific circumstances and popular beliefs of societies at particular times of social development. This is reflected in the two contrasting set-ups in Shanghai and Hong Kong. A single government organ, the Education Bureau, co-ordinates all matters concerning education in Hong Kong and administers more than 1 000 schools. This centralised set up has the advantage of equal distribution of research funding and equal student unit expenditures. Schools are also not left on their own or in small clusters where reforms might not be straightforward. Shanghai, whose population is larger than Hong Kong, is divided into city districts that each runs its own schools using local finance. However, the municipal government retains its policy-making and co-ordinating authority, and maintains strong monitoring to ensure parity among schools. Each approach appears to have its unique virtues.

▪ **The public examinations: a positive way to facilitate learning**

Policy makers and curriculum reformers see attitudes towards the public examinations as a major hurdle in opening doors for broader learning experiences for students. Hence, as discussed earlier, much of the reform effort seeks to counteract the adverse effects of the public examination.

Nevertheless, it is also true that the exam provides a basic infrastructure for learning, especially imparting knowledge, without which schools and teachers and even parents would feel bewildered. It might be over-simplistic to argue that public examinations are a necessary evil, but ways might be found to explore the positive function of public assessments. The PISA exercises and reformed public examinations in Shanghai, Hong Kong and Singapore all provide experimental ground for using public examinations in a positive way to facilitate learning.

The question is how assessments and evaluations can be revised to monitor the output of education as a *system*, as well as ensuring the quality of student learning. For example, public examinations could be coupled with school-based assessments, one-off examinations could be augmented by comprehensive and time-sensitive student portfolios and so forth. Many such dimensions are being experimented with in many systems, Shanghai and Hong Kong included.

▪ **Accountability**

The term accountability is pervasive in the literature on education policies. Sometimes packaged as quality assurance, it is on every government's agenda. However, often people may have taken procedures of quality assurance as assurance of quality. This could be a gross misunderstanding. First, as noted above, defining quality and the standards we expect should precede methods for assuring this quality. In other words, if we set a rather low quality standard, any quality assurance mechanism will only assure low quality. Second, quality assurance works only in a culture that has internalised high quality as a norm. This is the only way that there will be active efforts towards and understanding of quality across the board.

Shanghai and Hong Kong both have social norms which value quality in education. First, both have systems of quality assurance in the managerial sense, as understood elsewhere. There is no shortage of performance indicators and appraisal mechanisms, and there is no phobia of such technicalities in these societies. Second, both education systems are basically transparent. Parents in these societies are not used to intervening in school activities as they do in many Western societies. However, parents have very powerful influence on schools, either through their choice of schools or through the media, which run constant reports on schools (often their discrepancies). The vibrant cyber-community has added to the tremendous pressures on schools to maintain a high quality of education. In Shanghai, schools and parents have very close relations, to the extent that information flows both ways on cell phones. In Hong Kong, most leading newspapers have education pages that deal on a daily basis with policy debates as well as disputes in schools.

Principals and teachers therefore face a constant daily struggle to balance administrative accountability, client accountability and professional accountability. Dealing with the larger environment is not seen as an extra chore but as an integral part of professional responsibilities. This sense of accountability is built into programmes of teacher preparation, teachers' continuing professional development and training for school leadership. Hence, unlike in other cultures, accountability in Shanghai and Hong Kong is not regarded as a separate machinery to assure quality. Instead, accountability is built into the system as social expectations, as fundamental in school leadership, as well as an essential part of teachers professionalism. It is not about procedures and indicators.

FINAL OBSERVATIONS

China entered the global economy very late in the game, but has been making progress at breakneck speed ever since. It is hardly surprising that one can find almost everything somewhere in China, from examples of pre-industrial agricultural society to some of the most advanced industrial production sites in the world.




This chapter reflects this compressed development progression (see Chapter 1) in its account of the recent history of China's education system. The cultural background shared by the two case study societies no doubt explains elements of their common success. Yet both societies have been dissatisfied with some of the problems caused by that culture and both have sought to overcome them in their own ways. Both societies aim high and aspire to perform well in many areas of social development. Their ambitions are augmented by their prospering economic and financial sectors. However, both societies also regard human resources as the only resources they can rely on, and hence they have made substantial investments in education. This is a virtuous circle. Their spectacular reforms in education have made possible a no less spectacular economic success, which has in turn made it possible to continue to ratchet up the quality of their education systems. Their cultural heritage has played an important role in these successes, but that heritage has been constantly modernised.

In all these ways, the Chinese experience reflects the kind of progression in education development that appears to be taking place worldwide as the economy globalises, but the rate of these changes appears to be faster in China than in most other parts of the world.

■ Figure 4.3 ■

Shanghai-China and Hong Kong-China: Profile data

Language(s)	Official: Standard Mandarin (Shanghai) Standard Cantonese; English (Hong-Kong)
Population	1 328 million (2008) ³⁷ 12 million (2007) ³⁸ (<i>Shanghai</i>) 6 977 million (2008) ³⁹ (<i>Hong Kong</i>)
Youth population	20.5% ⁴⁰ (OECD 18.7%; World 27.4%)
Elderly population	7.9% ⁴¹ (OECD 14.4%; World 7.4%)
Growth rate	0.63% ⁴² (OECD 0.68%; World 1.19%)
Foreign-born population	0.1% Immigrants (2010) ⁴³
GDP per capita	USD 5 962 (2008) ⁴⁴ USD 11 361 (2009) ⁴⁵ (<i>Shanghai</i>) USD 39 062 (2008) ⁴⁶ (<i>Hong-Kong</i>)
Economy-Origin of GDP	Manufacturing, mining, utilities and construction 48.6%; Services 40.1%; Agriculture, forestry, fishing 11.3% (2008) ⁴⁷ Manufacturing, auto making, chemical processing, steel manufacturing, biomedicine (<i>Shanghai</i>) ⁴⁸ Manufacturing, finance, trade, other services, other sectors (<i>Hong Kong</i>) ⁴⁹
Unemployment	5.7% ⁵⁰ (OECD average 6.1%) ⁵¹
Expenditure on education	3.3% of GDP (OECD average 5.2%) ⁵² 3.3% of GDP (<i>Hong Kong</i>) ⁵³ 16.3% of total government expenditure (OECD average 13.3%) ⁵⁴ 23% of total government expenditure (<i>Hong Kong</i>) ⁵⁵
Enrolment ratio, early childhood education	44% (2008) (regional average 49%) ⁵⁶
Enrolment ratio, primary education	113% (2008) (regional average 110%) ⁵⁷
Enrolment ratio, secondary education	76% (2008) (regional average 77%) ⁵⁸
Enrolment ratio, tertiary ⁵⁹ education	23% ⁶⁰ (regional average missing)
Students in primary education, by type of institution or mode of enrolment ⁶¹	Public: 93.8% (OECD average 89.6%) Government-dependent private: 6.2% (OECD average 8.1%) Independent, private (included in "Government-dependent private" figure) (OECD average 2.9%)
Students in lower secondary education, by type of institution or mode of enrolment ⁶²	Public: 92.9% (OECD average 83.2%) Government-dependent private: 7.1% (OECD average 10.9%) Independent, private (included in "Government-dependent private" figure) (OECD average 3.5%)
Students in upper secondary education, by type of institution or mode of enrolment ⁶³	Public: 85.9% (OECD average 82%) Government-dependent private: 14.1% (OECD average 13.6%) Independent, private (included in "public" figure) (OECD average 5.5%)
Students in tertiary education, by type of institution or mode of enrolment ⁶⁴	Tertiary type B education: missing data ⁶⁵ (OECD average public: 61.8%) Government-dependent private: 19.2% Independent-private: 16.6%) Tertiary type A education: missing data ⁶⁶ (OECD average Public: 77.1%) Government-dependent private: 9.6% Independent-private: 15%)
Teachers' salaries	Average annual starting salary in lower secondary education: no data (OECD average USD 30 750) ⁶⁷ Ratio of salary in lower secondary education after 15 years of experience (minimum training) to GDP per capita: no data (OECD average: 1.22) ⁶⁸
Upper secondary graduation rates	Data missing (OECD average 80%) ⁶⁹

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Interview partners (Shanghai)

Shanghai Academy of Educational Science

Lu Jing, Associate professor, Vice director, Shanghai Institute for Basic Education Research and Shanghai PISA Centre, Shanghai Academy of Educational Sciences.

Gu Ling-yuan, professor, master teacher, former vice director of Shanghai Academy of Educational Sciences. He was honoured Shanghai Education Hero in 2003.

Dr. Wang Jie, Associate Professor, Director of Teacher Education Centre, Shanghai Academy of Educational Sciences.

Interviews at China Pu Dong Cadre College

Shen Zu-yun, Director of Shanghai Educational News Centre.

Wang Mao-gong, Director of Education Bureau in Xuhui District, a central district in Shanghai.

Yin Hou-qin, Vice director general, Shanghai Municipal Education Commission.

Zhang Min-sheng, professor, Shanghai Education Society, former Vice Director General of Shanghai Municipal Education Commission.

Dr. *Zhang Min-xuan*, Professor, Vice Director General, Shanghai Municipal Education Commission, PGB and NPM of Shanghai PISA 2009.

Zhu Jian-wei, Director of Education Bureau in Minhang District, a suburb district in Shanghai.

Shanghai Teaching Research Institute

Tan Yi-bin, Assistant Director, master teacher, teaching researcher in Chinese, Shanghai Teaching Research Institute, Leading Expert of PISA 2009 Reading Expert Group in Shanghai.

Xu Dian-fang, Director, Shanghai Teaching Research Institute.

Teachers and Principals

Bai Bin, principal, Chinese teacher, Wen Lai Middle School, PISA School Co-ordinator in PISA 2009 Field Trial, which is held on April 25, 2008.

Ding Yi, Vice Principal, Middle School affiliated to Jing 'an Teacher Education College.

Li Xiao-yu, vice principal charges on teaching, Chinese teacher, Qibao High School.

Qiu Zhong-hai, Master teacher and master principal, Shanghai Qibao High School, he was honoured Shanghai Education Hero in 2008.

Shi Ju, mathematics teacher, Wen Lai Middle School.

Wang Hong, Chinese teacher, Wen Lai Middle School.

Xu Feng, vice principal, politics teacher, Wen Lai Middle School.

Mr Zhou, Vice Principal, Wen Lai High School.

Zhou Ming-jun, English teacher, Wen Lai Middle School.

(Hong Kong)

The material for the section on Hong Kong is based on the experience of Professor Kai-ming Cheng, Chair of Education, University of Hong Kong (1995 to present), Senior Advisor to the Vice-Chancellor, University of Hong Kong (2003 to present), and former Vice-Chancellor, University of Hong Kong 1997-2003.



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Notes

1. This section describes the general situation in mainland China. The set up in Hong Kong is different and is described in the section on Hong Kong.
2. See detailed discussions in Elman, 2000.
3. South Korea, Japan, Macao, Vietnam and North Korea, though not all of them have the same results.
4. In ancient China, the general understanding of the social hierarchy went from scholars (at the top), to farmers, then artisans and finally merchants.
5. “Massive” is defined by an enrolment ratio of over 25%. The enrolment ratio in 2009 was 23%, very near to the “massive” threshold.
6. Despite minor variations in parts of the nation, 6+3+3 is the basic pattern for primary, junior secondary and senior secondary schooling. Vocational schools of various types normally operate at the senior secondary level.
7. Gross enrolment ratio is used here because of age staggering at that level.
8. An 80% subsidy towards student unit costs from the central government in underdeveloped provinces, 60% for provinces of medium economies and no subsidy for developed provinces.
9. See more detailed discussion in Yang 2004.
10. This is the argument, for example, of Professor Weifang Min, the Party Secretary of Peking University and leading economist of education at the World Bank conference held in 2007 in Beijing.
11. The curriculum reform reduced a class period to 35 minutes for primary school and 40 minutes for secondary school in Shanghai. In most of the other provinces in China, a class period is 40 minutes for primary school and 45 minutes for secondary school (Ding, 2010).
12. This was due to the Nanking Sino-British Treaty of 1842, after China’s defeat in the Opium War.
13. This is comparable with South Korea and Japan, where the number of places in higher education exceeds the number of high school graduates.
14. Institutes in Shanghai belong to different categories in terms of their relations with the central and municipal governments, with different degrees of sponsorship from the two authorities. Accordingly, they are assigned admission quotas of different mixes between local and national candidates.
15. To contain such education migrants, national stipulations require migrant children who attend basic education in the hosting city (e.g. Shanghai) to return to their places of origin for application to higher education institutions. In other words, they are not allowed to occupy a seat in the Shanghai quota.
16. The best presentation of this cultural assumption is by Fei Hsiao-tung, a student of Malinovsky and the first renowned anthropologist in China. According to Fei, society is perceived by the Chinese in a “hierarchical configuration” that is vertical and structured, as opposed to the Western view of society as an “association configuration” that is flat and *ad hoc*. This was best presented in the lecture series *Earthbound China* (1947).
17. This is also among the observations made by Stevenson and Stigler (1992).
18. This point was made succinctly by Mr Zhang Minsheng, former Director of the Education Commission of Shanghai, during a recent interview.
19. *Ibid.*
20. The following three sections are extracted and modified from a commissioned paper by Ding (2010).
21. See <http://wljy.sherc.net/kgpt/>.
22. This is a policy started in 2002, widely quoted. One of the most recent discussions can be found in Shao, 2010.
23. Interview with Gu Lingwan, former Deputy Director of the Shanghai Academy of Educational Research, a renowned teacher and reformer in mathematics education.
24. These are extracted and modified from Ding (2010).
25. *Ibid.*
26. Data from a group interview with good public school leaders.

27. This is from an interview with Mr Gu Lingyuan, a nationally famous mathematics teacher turned researcher, who is influential in education reforms in Shanghai.
28. USD 42 748 (7th) according to International Monetary Fund; USD 43 957 (4th) according to the World Bank.
29. The gross enrolment ratio in 1965 was actually over 100%. This was due to the staggered ages at which children started school.
30. At this time Hong Kong's legal labour age was 14, one year less than the international norm of 15, so the city was barred from joining major trade treaties. The decision about nine-year compulsory education came almost overnight to rescue Hong Kong from this major trade crisis. See Cheng (1987).
31. The Society of Accountants' representative made the point that what had been taught in universities was not useful in the workplace, and hence graduates have to unlearn what they have learned. They'd rather they were not taught accounting, which they could learn on-the-job in a matter of months. The interview was carried out in 2000.
32. Including a special session with Dr Albert Tuijmann, then member of the OECD education team, in June 2000.
33. For the best summaries of these theories see Sawyer (2006) and Bransford *et al.* (2000).
34. This is a concept development by Foucault in his later years. A brief introduction to the concept can be found in www.policyaddress.gov.hk/08-09/eng/policy.html.
35. This is one of the main themes of the Chief Executive's Policy Speech in 2009 (Tsang, 2009).
36. South Korea launched a few reforms in the 1980s which went against the elitist tradition of calling for equalisation of secondary schools and mass admission to higher education. See Cheng 2010.
37. OECD (2010), *OECD Economic Surveys: China 2010*, OECD Publishing.
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39. World Bank, World Development Indicators.
40. OECD (2010), *OECD Factbook 2010*, OECD Publishing. Ratio of population aged less than 15 to the total population (data from 2008).
41. OECD (2010), *OECD Factbook 2010*, OECD Publishing. Ratio of population aged 65 and older to the total population (data from 2008).
42. OECD (2010), *OECD Factbook 2010*, OECD Publishing. Annual population growth rate (data from 2007).
43. China is a sending country, with an estimated diaspora of 35 million worldwide (International Organisation for Migration, www.iom.int).
44. OECD (2010), *OECD Economic Surveys: China 2010*, OECD Publishing. PPP (data from 2008).
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48. Shanghai municipal government.
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51. OECD (2010), *OECD Factbook 2010*, OECD Publishing. Total unemployment rates as percentage of total labour force (data from 2008).
52. OECD (2010), *Education at a Glance 2010*, OECD Publishing (year of reference – 2007).
53. UIS Statistics in Brief: Hong Kong (China) SAR 2010 (year of reference – 2008).
54. OECD (2010), *Education at a Glance 2010*, OECD Publishing (year of reference – 2007).
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56. UNESCO-UIS (2010), *UIS Statistics in Brief: China*. Percentage represents gross enrolment rate for MF; 2008 (regional average 49%).



57. UNESCO-UIS (2010), *UIS Statistics in Brief: China*. Percentage represents gross enrolment rate for MF; 2008 (regional average 110%).
58. UNESCO-UIS (2010), *UIS Statistics in Brief: China*. Percentage represents gross enrolment rate for MF; 2008 (regional average 77%).
59. The OECD follows standard international conventions in using the term “tertiary education” to refer to all post-secondary programmes at ISCED levels 5B, 5A and 6, regardless of the institutions in which they are offered. OECD (2008), *Tertiary Education for the Knowledge Society: Volume 1*, OECD Publishing.
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62. Data from UNESCO Institute for Statistics, Data from 2008, cited in OECD (2010) *Education at a Glance 2010*, OECD Publishing.
63. Data from UNESCO Institute for Statistics, Data from 2008, cited in OECD (2010) *Education at a Glance 2010*, OECD Publishing.
64. Data from UNESCO Institute for Statistics, Data from 2008, cited in OECD (2010) *Education at a Glance 2010*, OECD Publishing.
65. Data missing from *Education at a Glance 2009* (OECD, 2009).
66. Data missing from *Education at a Glance 2009* (OECD, 2009).
67. Starting salary/minimum training in USD adjusted for PPP, *Education at a Glance 2010* (OECD, 2010).
68. Starting salary/minimum training in USD adjusted for PPP, *Education at a Glance 2010* (OECD, 2010).
69. OECD (2010), *Education at a Glance 2010*, OECD Publishing. Sum of upper secondary graduation rates for a single year of age (year of reference for OECD average – 2008).