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**EXAMINATION POLICIES AND PRACTICES: A COMPARATIVE
STUDY IN CHINA, TAIWAN, HONG KONG AND MACAO**

By

TANG, KWEI KIN

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Submitted in Partial Fulfillment of the Requirements

of the Doctor of Education

University of Durham

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List of Abbreviations

Short Form	Full name	Name used in
AAT	Academic Aptitude Test	Hong Kong
AEVTHS	Admission Examination for Vocational/Technical High Schools	Taiwan
AS-Level	Advanced Supplementary Level	Hong Kong
CBA	Computer-Based Assessment	
CMI	Chinese Medium of Instruction	Hong Kong
CPC	Communist Party of China	China
CUME	Chinese University Matriculation Examination	Hong Kong
ECR7	Education Commission Report No. 7	Hong Kong
EEC	Entrance Examination Center	Taiwan
EMI	English Medium of Instruction	Hong Kong
GCE	General Certificate of Education	UK
GCSE	General Certificate of Secondary Education	UK
HKALE	Hong Kong Advanced Level Examination	Hong Kong
HKCEE	Hong Kong Certificate of Education Examination	Hong Kong
HKEA	Hong Kong Examination Authority	Hong Kong
HKHLE	Hong Kong Higher Level Examination	Hong Kong
HKSAR	Hong Kong Special Administrative Region	Hong Kong
HSGE	High School Graduation Examination	Taiwan
IT	Information Technology	
JEE	Joint Entrance Examination	Taiwan
JCE	Junior Certificate of Education	Hong Kong
JHSEE	Junior High School Entrance Examination	Taiwan
JSEA	Junior Secondary Education Assessment	Hong Kong
JMSEE	Junior Middle School Entrance Examination	China
JMSGE	Junior Secondary School Graduation Examination	China
NEAC	National Examination Agency of China	China
NUCEE	National Unified College Entrance Examination	China
OUHK	Open University of Hong Kong	Hong Kong
PAR	Personal Achievement Record	
PSGE	Primary School Graduation Examination	China
PRC	People Republic of China	China
RJEE	Reformed Joint Entrance Examination	Taiwan
RSEP	Recommendation Screening Examination Program	Taiwan
SHSEE	Senior High School Entrance Examination	Taiwan

SSEE	Secondary School Entrance Examination	Hong Kong
SSPA	Secondary School Places Allocation	Hong Kong
SMSEE	Senior Middle School Entrance Examination	China
SMSGE	Senior Middle School Graduation Examination	China
TAS	Teacher Assessment Scheme	Hong Kong
TIMSS	Third International Mathematics and Science Study	
UCSS	1-year University Course & Selection Scheme	Taiwan
UJEE	University Joint Entrance Examination	Taiwan
UK	United Kingdom	
VAS	Voluntary Admission Scheme	Taiwan
VTCAE	Vocational/Technical College Admission Examination	Taiwan

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Declaration

I declare that no parts of the material contained in the thesis have previously been submitted for a degree in this or any other university.

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**Examination Policies and Practices:
A Comparative Study in China, Taiwan, Hong Kong and Macao**

TANG KWEI KIN

ABSTRACT

Public examinations are frequent and are defended as being useful in indicating the levels of achievement expected for all, strengthening achievement motivation, and as a tool of the meritocratic selection mechanism for limiting resources. However, some teachers and many parents have complained about the pressure exerted by the all-important selection examinations, and the reliabilities and validities of examinations. These controversies about the examination policies and practices cannot be understood without reference to people's values and to political factors. They are influenced by people's views of their society, of the purposes of examination, the availability of resources and who controls those resources.

In order to better understand the formulation of examination policies and practices in a society, I try to compare and analyse the examination policies and practices adopted in China, Taiwan, Hong Kong and Macao with the four main issues in mind: (1) Why have examinations become progressively more prominent in educational system? (2) What are the major variations in examination policies and practices in China, Taiwan, Hong Kong and Macao? (3) How can these variations be explained? (4) What will be the future development of examination policies and practices in China, Taiwan, Hong Kong and Macao? It is suggested that the formulation of the examination policies and practices in these four places is socially constructed and is a product of ideological struggle, conflict and compromise among different stakeholders in the communities.

In this thesis, after careful consideration of the historical, political, educational, socio-economic and cultural variables in these four places, a new assessment model has been devised. This multi-modal approach to assessment is believed to be able to 'bring out the best' in children. This new model can be used as a reference by different governments to make more effective assessment on their children.

Chapter 1

Introduction

Examination is one of the long historical cultures. At first examination was not in an independent mode and was merged with the educational activities. Following the social development, examination becomes an independent cultural mode -- examination system. Nowadays examination has permeated through every corner of the society. Everyone has a close relationship with some sorts of examinations through one's whole life. To better understand the development of examinations under different cultural background, we have to look back for the origins of examinations.

Origins of examinations

Shigeru Nakayama (1984) points out that two major approaches have emerged for the development of knowledge, the rhetorical and the documentary. In the rhetorical tradition, which was characteristic of the Judeo-Hebraic tradition which received its highest development in classical Greece, knowledge was developed through verbal assertions and argumentation. Plato's Dialogues was an example of this form of knowledge creation; significantly, the Dialogues were written by Plato's student long after their original presentation. The rhetorical tradition did not depend on a written record. In the documentary tradition, which was characteristic of the Chinese tradition, the knowledge was developed and recorded on paper rather than expressed in debate. Addition to knowledge made reference to antecedents directly or through symbolism. The core documents in the Confucian tradition were the Five Classics and the Four Books. The later books in this corpus made consistent reference to their precedents as they explored new themes. Professional scholars working in such areas as medicine, astronomy, or even poetry observed the same discipline.

There are extensive debates on the relative merits of these two forms of knowledge development (Needham, 1956; Lach, 1977; Boorstein, 1983). Regardless of the conclusions, undisputed is the much earlier development in China of a flexible writing



system and an extensive body of recorded knowledge. Nakayama (1984) observes, China by virtue of the special characteristic of its intellectual heritage, was uniquely in a position to devise a formal examination. Thus, China was in a position, at a much earlier time than the West, to develop written knowledge-based examinations.

Examinations in the East

Rigorous forms of evaluation of formal educational achievement are generally believed to have first been developed in China by the Sui (589-618 AD) emperor (Miyazaki, 1981). Prior to that, during the Han period, informal means of evaluation to select those who would assume key posts in the Imperial household was held.

When examinations were introduced in ancient China to select Imperial Civil servants, the examination syllabuses included the singing of odes, testing the practical skills of archery and horsemanship, and allowed some individual interpretation of Confucian ideas. But later the examination system was designed to test the pupils' comprehensive mastery of all the written material in the Five Classics and the Four Books. Candidates were tested mainly on these specific contents. Candidates were expected to prepare for the examinations on their own in private schools run by able scholars or through private tutorials. It has been estimated that an exceptional youth who could memorize 200 new characters a day might be prepared for the first round of examinations by the age of 15; most candidates took much longer, continuing their studies even into their thirties. A system of regional testing was devised to screen out poorly prepared students. Those who survived these hurdles were invited to travel to the capital city to take the highest examination over a continuous period of three days. The candidate's answers were assessed by a special examination board appointed by the emperor, focusing their appraisal on correct referencing, literary quality, and penmanship. Each time the examination was offered, a fixed number of top candidates were successfully accepted into the imperial bureaucracy. Obviously this selection process is based on, to use a modern term, the norm-referenced testing.

Examinations in the West

There are various accounts concerning the origins of examinations in the West

(Durkheim, 1966; Montgomery, 1965; Amano, 1990). An enduring theme in the Western societies, drawing from the rhetorical tradition, has been the reliance on oral and other less-structured forms of evaluation, such as recommendations and practical achievements. For example, in continental Europe, most secondary school-leaving examinations have an oral component; and the interview is a major component of evaluation for entry to top universities. Through the 17th century, evaluation in the West relied almost exclusively on such criteria. But from about that time, written examinations became progressively more prominent for the Chinese example.

Ikeso Amano (1990), who has written the most comprehensive study of the role of examinations in modern education, suggests that Prussia was the first European society to rely on such assessments for the selection of public officials. From as early as 1748 Prussia depended on examinations for filling all government administrative posts. Ringer (1974) points out that university education became a prerequisite for seeking a government office, thus leading to competition for university entrance.

In 1788 the *abitur* examination was introduced as a means for determining who was qualified to graduate from the middle schools (and thus have claim to a place at the university). Over the succeeding years, examinations were introduced at lower levels.

Another account (Montgomery, 1965) suggests that the British East India Company admired the Chinese examination system, and decided from the early 19th century to introduce a similar method for the selection of its local-hire personnel. Eventually the system was elaborated to become the basis for all new appointments to the East India Company. And following this example, in 1872, the British government introduced competitive examinations for all civil service appointments.

Amano observes that, while there are various accounts of the origin of examinations, what stands out is the pervasive interest from about the middle of the 19th century in examinations as a means of social selection. Thus, he calls this period the Age of Examinations. The key background factor in this era is the emergence of large public bureaucracies to collect revenues and administer various services. These bureaucracies

sought effective means of selecting staff. One after another, they turned to some form of examination for this purpose. Examinations were also used for entry to other important positions, including those in medicine, the judiciary, and even the clergy. In some areas, the professions introduced examinations ahead of the civil services. But especially from this period, the examinations for entry to the professions became more rigorous, and often the state played some role in the administration of the examinations.

Since schools had been the traditional source for supplying staff to the bureaucracies, the schools themselves began to introduce examinations, in part, at least, as a means of preparing students for the official examinations.

What can we draw from the origins of examinations in the East and the West ?

Two major factors account for the introduction of formal examinations in ancient China. Perhaps the most important is a tactical need, in that the Sui were outsiders of the Central China attempting to establish control over an entrenched aristocratic system, so they developed a means of selecting officials that would provide legitimacy for a new ruling group. Recognizing the high prestige of the Confucian intellectual heritage, the Sui leaders hit upon the idea of testing candidates in terms of their knowledge of this prestigious heritage. They measured the achievement of candidates on prescribed subject matter so that the aristocrats would have no special advantage in these tests over other candidates from, for example, their own society. The crucial determinants of success would be ability and effort in mastering the prescribed subject matter.

Selection is the main purpose for the introduction of the examination system in China. It was used to select those who could assume key posts in the government. Selection of this kind was based on the Confucian dictum that positions in the bureaucracy should go to men of proven merit and ability, having the assumption that examinations could truly assess the ability of the candidates. This belief, due to the inference of Confucius, has been prevalent widely in China till today.

Most of the Chinese people have a belief that examinations can help them better their

lives. This is because they think examinations are the only fair means to be trusted for the selection of officers in the government. This belief is very important in Chinese communities especially in a society where family obligation - and hence nepotism - is strong. Examination is seen by most Chinese people as a fair instrument for selection. This traditional Chinese culture dominates people in China for centuries down to present.

There is another reason for introducing selection examinations by the government in China. It is partly to broaden the social basis of recruitment for the government, and partly to weaken the social control and nepotism. These objectives are found to be successfully achieved through the existing examination system in China.

In the West, the introduction of examination in schools is to select students for the entry to the top universities or to work in the society. As schools are always transitional, they prepare students for a next stage - for another kind of school or for occupation or for political activities or for family life and so on. Thus, we have on the one hand the educational institutions and on the other hand the social, economic, political institutions in which, the students will be expected to participate. There are linking mechanisms between the two sets of institutions which assess the extent to which the young are ready to perform the assigned roles. One of these mechanisms is the examination system. Examination, in this sense, plays a vital role in shaping the linkage of schools, universities and the society as a whole.

It is seen that selection of people for the posts or selection of students for the next stage of education is the key function of examinations in both the East and the West. This concept has been lasting for centuries.

Although written examinations are believed to have developed in China, oral examinations are practised in the West, and a combination of the written and oral examinations has been practised in both the East and the West for many years. This mode of examinations has been used for centuries without querying about its reliability and validity. That is to say, people assume that examinations can truly assess the ability

of the candidates. This creates a lot of debates in the educational field as well as in other parts of the society.

Objectives

There are always hot debates in Hong Kong about the uses of examinations and their backwash effect to the children especially when there is a child who commits suicide due to heavy school workload. Critics argue for the negative impact brought about by examinations on children and suggest the abolition of examination system in Hong Kong. However, some stakeholders in the society defend that examinations have their social, political and educational roles. In the diploma-pursuing society and the certification society like Hong Kong, examination, at least in principle, becomes the 'fair ruler' to all of us. No complaints will be heard if the disqualification is due to the lower scores. The abolition of the examination system, like dragging away a column from a building, will cause disruption or chaos in the society. These controversial issues will have to be studied carefully if we want to suggest some ways to improve the examination policies and practices in Hong Kong.

A review of the examination policies and practices requires an awareness of the professional conditions and social settings in the society. Professional conditions include the attitudes and values held by professionals toward test use. Social conditions include the nature of prevailing social problems that may be addressed by tests, the values the society holds toward test use and its concerns about test misuse, as well as its desire to use public and private revenues to support test development, distribution and use.

It is now clear that professionals are not in sole command of the future of testing. The contexts of history, general purposes, professionalization, status of education, social and political events affect testing as well.

The purpose of this thesis is to study the development of examination policies and practices in Hong Kong, and to provide a conceptual model which may be used to study

the social role of educational assessment in those societies which have formal education provision. The understanding that such studies generate should in turn help those charged with designing and using assessment procedure to apply this powerful social role in the full knowledge of its potential impact (Broadfoot, 1996).

In this connection, this thesis calls for consideration both of the functional role of testing and of the social consequences of testing in the society as a whole. It is particularly concerned with exploring the social role of educational assessment as a policy device that can be used to direct and legitimate the social and political goals of education systems (Gifford, 1993).

To facilitate my study on examination policies and practices in Hong Kong in a more systematic way, I focus on the following four questions for discussion:

1. Why have examinations become progressively more prominent in educational system?
2. What are the main factors affecting the development of examination policies and practices?
3. How can these variations be explained?
4. What should be the future development of examinations in Hong Kong?

In general, the terms, methods and procedures used in assessment and testing in any country can only be understood in the light of the historical development of that country (in relation both to its education system and to broader social factors), cultural and political contexts within which they are worked out. These also entail complex issues both of techniques and of principle of assessment (Black, 1998). However, I don't think it is sufficient enough to understand better the examination policies and practices in Hong Kong if we only study the situations in Hong Kong alone. We ought to look around other cities of similar cultural background. So I carry out a comparative study on examination policies and practices in China, Taiwan, Hong Kong and Macao as my thesis. I hope the comparison presented in this thesis offers us a window on educational 'laboratories' in four places. The examinations in other three places can be viewed as experiments based on different methods than those typically used in Hong Kong. While

there are hazards and limitations inherent in transferring one place's strategies to another place's context, issues of transferability should not discourage us from looking outside Hong Kong for fresh ideas and perspectives. As J.R. Kidd has suggested that comparative educational study has numerous goals. The foremost is to become better informed about some area of education in another part of the world. Perhaps, though, the true goals of comparative educational research should be to allow the researcher and reader to deepen their understanding of their own education and society and to reveal how cultural biases and personal attributes affect their judgement (Kidd, 1981, p.202). An understanding of the educational difficulties that face comparative situations abroad can help mitigate the ideological and political rancour that periodically emerges on the domestic front (Noah, 1984, pp.551-553). Thus, comparative studies of education, at best, can help one society discern more clearly its ideal educational picture.

Reasons for choosing China, Taiwan, Hong Kong and Macao as targets of study

The approach used here will focus on the development of assessment in China, Taiwan, Hong Kong and Macao. One reason for the choice of China, Taiwan, and Macao as partners of comparison is that, in terms of cultural context and development strategies, they have both similar and opposite characteristics in comparison with Hong Kong. Though the Chinese people have long history of examination experiences, their views towards examinations may change due to many social and political factors. China has tried to apply a socialist development strategy to a Confucian-oriented cultural context, whereas Taiwan is adopting a capitalist development strategy, Hong Kong and Macao are influenced by the colonialism of British and Portuguese. These places are taken to be sufficiently similar to each other in terms of their traditional culture and Chinese origin, yet sufficiently contrasting in their different social development strategies. Hopefully, this triangular comparison will shed some light on the examination policies and practices in Hong Kong.

The second reason for choosing these four places is that the school in one place symbolizes the schools in the other three places. Values, goals, competitive structure,

pedagogy, family involvement, and the childhood experience in Hong Kong are essentially the same as found in the other three places that have as their theoretical, philosophical, and operational foundation notions derived from historical Confucianism. Smith (1997) points out that these features that are only found in Chinese societies cannot usually be replicated in other regions of the world.

The third reason is that there is a strong need to think of the connections among these four places. Considering that the equivalence of school and university qualifications at a Chinese level will considerably increase exchanges of young people willing to follow up their studies in other places and, consequently, will contribute to the building up of a Chinese spirit. As Professor Chan Wai Chiu, the Chancellor of Taiwan University comments on the close relationship among China, Taiwan, Hong Kong and Macao:

For our future prospect, the universities of the two straits and four places should further be associated, and jointly explore and inquire how to make the Chinese traditional culture be merged with the modernization. (Ming Pao, 1998).

However, the discussion also draws upon the experience of other countries, partly because this broadening of perspective shows up some of the issues more clearly, and partly because it is important to question and explore what one has come to take for granted about one's own experience (Black, 1998).

Organisation of the thesis

Chapter One gives a brief account on why I start this study. Since the Chinese culture has great influence on the development of examinations in the Chinese societies, the origins of examinations in the East and West have to be studied. Chapter Two is concerned with the methodology used in the study. It briefly explains the approaches used to study the examination systems in China, Taiwan, Hong Kong and Macao. Chapter Three is to find out why examinations have become progressively more prominent in China, Taiwan, Hong Kong and Macao even though there are a lot of

debates against their existence. Chapter Four focuses on various factors affecting the development of examination policies and practices in China, Taiwan, Hong Kong and Macao. Chapter Five, in return, studies the impacts that examinations may bring out to every corner of the society. Understanding well these factors and the impacts created by examinations will facilitate us to plan for our future development of examinations. Chapter Six proposes a new assessment model whose formulation is based on the findings of previous chapters. The last chapter, Chapter Seven, is the conclusion of this thesis. I hope this thesis is useful, not only considering the questions that we have already in mind, but for prompting new ones.

Chapter 2

Methodology

This thesis is a study of examination policies and practices in Hong Kong in comparison with China, Taiwan and Macao. It is based on field-based research, interviews, published literature, observations and personal interactions with these cities. Case study is based on interviews. Face-to-face interviews of different groups of people (teachers, students and parents) involved was an important source of qualitative data in my study. As Patton (1987) points out the fundamental principle of interviewing is to provide a framework within which respondents could express their own understandings in their own terms (p.115). This helped me capture individual differences and the complexity of their perceptions and experience on the change. I also learned deeper about their terminology and judgements to the change. Researchers realize that every good interview is more than just asking questions but also an observation (Chadwick,1984, p.208; Patton, 1987).

With the aid of the semi-structured questions, all interviewees responded to the similar areas of interest. This helped me organize and analyze the data more systematically and greatly increased the comparability of responses of people from different places.

Sampling

Due to the nature of my job, I had a lot of opportunities to visit schools in Peking, Shanghai and Guangzhou in China, Taipei in Taiwan and in Macao. Most of the interviews were conducted when I paid visits to these schools. Although it might not be a requirement to request for official approval from the Education Authorities prior to data collection from schools, I usually informed the relevant authority officials that the research was exploratory in nature and their support could facilitate my study. This is very important because I understand well that people are free to talk if the interviews have been endorsed by the authorities. With the help of the officials to identify the required secondary schools for my interviews, the schools were stratified in accordance with their popularities¹ in the places. They were stratified into three levels i.e. the 'Top', 'Middle' and 'Bottom' schools.

In Hong Kong interviews of teachers, students and parents for different levels of

are possible as I work in the Education Department and my educational experiences in Hong Kong supplement the necessary information required.

When the schools once identified, the teachers, students and parents were randomly chosen for interviews. The whole process was a multi-level stratified random sampling. This made the comments from the interviewees more representative.

Table 2.1: The distribution of teachers in different types of schools

	China	Taiwan	Hong Kong	Macao
Top	16	10	40	15
Middle	17	10	42	14
Bottom	17	10	38	13
Total	50	30	120	42

Table 2.2: The distribution of students in different types of schools

	China	Taiwan	Hong Kong	Macao
Top	18	14	27	7
Middle	16	13	27	6
Bottom	16	13	26	7
Total	50	40	80	20

Table 2.3: The distribution of parents in different types of schools

	China	Taiwan	Hong Kong	Macao
Top	14	11	17	8
Middle	15	10	16	6
Bottom	11	9	17	6
Total	40	30	50	20

When I was going to conduct the interviews, I confessed that the interviews were mainly for my own personal Doctor of Education thesis and prior approval from authorities had been granted. I encouraged them to express freely without being afraid of the consequences. Although they understood well the situation, they insisted that they would not start the interviews if they were tape-recorded. They also asked me not to put their names in my thesis. I understood their concerns² and I had to jot down all the relevant points during the interviews. Sometimes my wife helped me take down those key points made by the interviewees.

Analysis of data

Analysis is the process of bringing order to the data, organizing what is there into patterns, categories, and basic descriptive units (Patton, 1987, p.144). Since handwritten notes were taken during the interviews, only in case of some important quotations from the

interviewees, transcription of that part was then done so as to reserve the original wordings and expression to its greatest extent.

During the interviews, I made written-up field note with reflective remarks, summary of the interviews, and grouped the opinions collected to facilitate the analysis. Furthermore all the interviews were structured. Responses of the interviewees could be grouped and compared accordingly.

The responses from the interviews were grouped into different headings as shown in the following three tables

Table 2.4: Summary responses for the semi-structured questions from teachers

No.	Question	Responses			
		China	Taiwan	Hong Kong	Macao
1	How do you comment your students in the present education system?				
	<input type="checkbox"/> They are 'narrow-minded'.	34(68%)	20(66.7%)	86(71.7%)	28(66.7%)
	<input type="checkbox"/> They are 'high marks low abilities'.	40(80%)	24(80%)	57(47.5%)	30(71.4%)
	<input type="checkbox"/> They are 'book worms'.	31(62%)	22(73.3%)	105(87.5%)	26(61.9%)
2	How can you help your students to prepare for the examination?				
	<input type="checkbox"/> Coaching them after school	20(40%)	10(33.3%)	16(13.3%)	18(42.8%)
	<input type="checkbox"/> Preparing a lot of notes for them to study.	40(80%)	25(83.3%)	98(81.7%)	30(71.4%)
	<input type="checkbox"/> Preparing a lot of exercises for them to practise	45(90%)	28(93.3%)	116(96.7%)	38(90.5%)
3.	Is it appropriate to use the results of the public examinations to select students to the next level of education? Why?				
	<input type="checkbox"/> Yes, there are no other tools fairer than examinations.	36(72%)	22(73.3%)	83(69.2%)	31(73.8%)
	<input type="checkbox"/> Yes, it helps to get rid of the nepotism, 'back door' practices.	45(90%)	28(93.3%)	107(89.2%)	35(83.3%)
	<input type="checkbox"/> No, examinations cannot assess everything.	36(72%)	20(66.7%)	98(81.7%)	29(69%)
	<input type="checkbox"/> No, examinations exert much pressure on students.	41(82%)	19(63.3%)	106(88.3%)	33(78.3%)
4.	Which school will you advise your students to study, if choice is available?				
	<input type="checkbox"/> Schools near their homes	8(16%)	5(16.7%)	18(15%)	12(28.6%)
	<input type="checkbox"/> Key/ best schools even far away from their homes	42(84%)	25(83.3%)	102(85%)	30(71.4%)

5.	Do you consider 'Conduct' as one of the key factors to select students? Why? <input type="checkbox"/> Yes, it is an important attribute of a student. <input type="checkbox"/> No, it is a subjective measure.	40(80%)	18(60%)	48(40%)	34(80.9%)
		10(20%)	12(40%)	72(60%)	8(19%)
6.	Do you think the paper-and-pencil tests are best for assessing students? Why? <input type="checkbox"/> Yes, they are fair and cost effective. <input type="checkbox"/> No, some attributes of students cannot be assessed.	33(66%)	11(36.7%)	52(43.3%)	31(73.8%)
		17(34%)	19(63.3%)	68(56.7%)	11(26.2%)
7.	What will happen if there are no examinations? <input type="checkbox"/> Lower the academic standards of students. <input type="checkbox"/> Students have no incentives to study. <input type="checkbox"/> Students have no clear learning objectives. <input type="checkbox"/> Teachers have no clear teaching objectives <input type="checkbox"/> Admission system becomes unfair. <input type="checkbox"/> Teachers have no indicators for accountability. <input type="checkbox"/> Students and teachers have less stress. <input type="checkbox"/> Students and teachers have better relationship <input type="checkbox"/> Teaching and learning can be more effective.	49(98%)	28(93.3%)	118(98.3%)	40(95.2%)
		45(90%)	25(83.3%)	111(92.5%)	31(73.8%)
		35(70%)	20(66.7%)	102(85%)	36(85.7%)
		30(60%)	16(53.3%)	99(82%)	37(88.1%)
		36(72%)	22(73.3%)	83(69.3%)	31(73.8%)
		38(76%)	26(86.7%)	101(84.2%)	40(95.2%)
		41(82%)	27(90%)	112(93.3%)	35(83.3%)
		29(58%)	19(63.3%)	106(88.3%)	29(69%)
		25(50%)	17(56.7%)	67(55.8%)	21(50%)
8.	Which kind of students admitted to schools/ universities is better for further study? <input type="checkbox"/> By examination results <input type="checkbox"/> By recommendation	46(92%)	25(83.3%)	107(89.2%)	38(90.5%)
		4(8%)	5(16.7%)	13(10.8%)	5(11.9%)
9.	Which aspects should the education system emphasize? <input type="checkbox"/> Ethics <input type="checkbox"/> Intellect <input type="checkbox"/> Physique <input type="checkbox"/> Social skills <input type="checkbox"/> Aesthetics	36(72%)	20(66.7%)	28(23.3%)	12(28.6%)
		41(82%)	26(86.7%)	100(83.3%)	27(64.3%)
		33(66%)	21(70%)	35(29.2%)	23(54.8%)
		24(48%)	15(50%)	40(33.3%)	15(35.7%)
		15(30%)	15(50%)	20(16.7%)	10(23.8%)
		50	30	120	42

Remark:

Although Macao did not have its own public examinations, teachers still had to prepare their students for other public examinations adopted by their schools.

Table 2.5: Summary responses for the semi-structured questions from students

No.	Question	Responses			
		China	Taiwan	Hong Kong	Macao
1	What will you do when you fail in the University Entrance Examination?				
	<input type="checkbox"/> Second attempt	11(22%)	15(37.5%)	22(27.5%)	4(20%)
	<input type="checkbox"/> Study abroad	9(18%)	13(32.5%)	26(32.5%)	6(30%)
	<input type="checkbox"/> Go to work	30(60%)	12(30%)	38(47.5%)	10(50%)
2	How can you help yourself to prepare for the examination?				
	<input type="checkbox"/> Attending 'cram school'	27(54%)	32(80%)	61(76.3%)	0(0%)
	<input type="checkbox"/> Hiring private tutor(s) at home	12(24%)	4(10%)	10(12.5%)	4(20%)
	<input type="checkbox"/> Drilling a lot of supplementary exercises	42(84%)	38(95%)	73(91.3%)	16(80%)
3.	Is it appropriate to use the results of the public examinations to select students to the next level of education? Why?				
	<input type="checkbox"/> Yes, there are no other tools fairer than examinations.	43(86%)	26(65%)	57(71.3%)	9(45%)
	<input type="checkbox"/> Yes, it helps to get rid of the nepotism, 'back door' practices.	48(96%)	19(47.5%)	28(35%)	2(10%)
	<input type="checkbox"/> No, examinations cannot assess everything.	7(14%)	15(37.5%)	24(30%)	5(25%)
	<input type="checkbox"/> No, examinations exert much pressure on students.	39(78%)	33(82.5%)	72(90%)	15(75%)
4.	Why do you choose senior high school/ senior secondary school?				
	<input type="checkbox"/> I have good academic results	26(52%)	23(57.5%)	21(26.3%)	2(10%)
	<input type="checkbox"/> More chances to study in the university.	38(76%)	25(62.5%)	67(83.6%)	4(20%)
	<input type="checkbox"/> This is my interest.	18(2%)	12(30%)	21(26.3%)	3(15%)
5.	Do you feel stress in preparing for the examination?				
	<input type="checkbox"/> Great stress	44(88%)	38(95%)	75(93.8%)	15(75%)
	<input type="checkbox"/> Not much stress	6(12%)	2(5.5%)	4(5%)	5(25%)
6.	What will happen if there are no examinations?				
	<input type="checkbox"/> Lower the standards	40(80%)	32(80%)	68(85%)	8(40%)
	<input type="checkbox"/> No incentives to study	43(86%)	37(92.5%)	74(92.5%)	15(75%)
	<input type="checkbox"/> No learning objectives	32(64%)	25(62.5%)	59(73.8%)	11(55%)
	<input type="checkbox"/> Unfair admission system	43(86%)	26(65%)	57(71.3%)	9(45%)
	<input type="checkbox"/> Less stress	39(78%)	33(82.5%)	72(90%)	15(75%)
	<input type="checkbox"/> Feeling happier	36(72%)	31(77.5%)	41(51.3%)	13(65%)
	<input type="checkbox"/> Learn more for other subjects	28(56%)	22(55%)	35(43.8%)	7(35%)
	<input type="checkbox"/> Good relationship between students and teachers	25(50%)	19(47.5%)	45(56.3%)	5(25%)
	<input type="checkbox"/> Planning more activities	28(56%)	22(55%)	35(43.8%)	7(35%)
		50	40	80	20

Table 2.6: Summary responses for the semi-structured questions from parents

No.	Question	Response			
		China	Taiwan	Hong Kong	Macao
1	How can you help your child to prepare for the examination?				
	<input type="checkbox"/> Ask my child to attend 'cram school'.	21(52.5%)	28(93.3%)	43(86%)	2(10%)
	<input type="checkbox"/> Hire private tutor(s) for my child.	25(62.5%)	12(40%)	27(54%)	2(10%)
	<input type="checkbox"/> Buy more supplementary exercises for my child.	35(87.5%)	26(86.7%)	41(82%)	16(80%)
2.	Is it appropriate to use the results of the public examinations to select students to the next level of education? Why?				
	<input type="checkbox"/> Yes, there are no other tools fairer than examinations.	37(92.5%)	26(86.7%)	42(84%)	12(60%)
	<input type="checkbox"/> Yes, it helps to get rid of the nepotism, 'back door' practices.	38(95%)	22(73.3%)	38(76%)	8(40%)
	<input type="checkbox"/> No, examinations cannot assess everything.	10(25%)	13(43.3%)	15(30%)	7(35%)
	<input type="checkbox"/> No, examinations exert much pressure on students.	30(75%)	23(76.7%)	36(72%)	11(55%)
3.	Which school do you want your child to study?				
	<input type="checkbox"/> A school near home.	7(17.5%)	6(20%)	8(16%)	5(25%)
	<input type="checkbox"/> 'Key' (best) school even far away from home	30(75%)	18(60%)	37(74%)	3(15%)
	<input type="checkbox"/> Study abroad.	6(15%)	6(20%)	5(10%)	12(60%)
4.	What kinds of methods do you use to send your child to the popular kindergarten/ primary school that you want your child to study?				
	<input type="checkbox"/> By sending the child to live with relatives.	30(75%)	23(76.7%)	38(76%)	2(10%)
	<input type="checkbox"/> By direct application to the school	10(25%)	7(23.3%)	12(24%)	18* (90%)
5.	Do you feel stress in preparing your child for the examination?				
	<input type="checkbox"/> Yes	35(87.5%)	27(90%)	43(86%)	11(85%)
	<input type="checkbox"/> No	5(12.5%)	3(10%)	7(14%)	9(45%)
6.	Do you want to abolish the university entrance examination?				
	<input type="checkbox"/> Yes	5(12.5%)	4(13.3%)	6(12%)	4(20%)
	<input type="checkbox"/> No	35(87.5%)	26(86.7%)	44(88%)	16(80%)
7.	How do you feel about the students?				
	<input type="checkbox"/> They are 'narrow-minded' fellows.	30(75%)	21(70%)	38(76%)	10(50%)
	<input type="checkbox"/> They are 'high marks low abilities'.	33(82.5%)	25(83.3%)	41 (81%)	14(70%)

8.	What will happen if there are no examinations?				
	<input type="checkbox"/> Lower the academic standards of students.	32(80%)	27(90%)	46(92%)	15(75%)
	<input type="checkbox"/> Students have no incentives to study.	35(87.5%)	24(80%)	43(86%)	12(60%)
	<input type="checkbox"/> Admission system becomes unfair.	38(95%)	26(86.7%)	42(84%)	12(60%)
	<input type="checkbox"/> The whole family will have less stress.	31(77%)	27(90%)	42(84%)	12(60%)
<input type="checkbox"/> Students and teachers have better relationship	36(90%)	28(93.3%)	47(94%)	18(90%)	
9.	Which aspects should the education system emphasize?				
	<input type="checkbox"/> Ethics	10(25%)	5(16.7%)	10(20%)	6(30%)
	<input type="checkbox"/> Intellect	37(92.5%)	25(83.3%)	43(86%)	15(75%)
	<input type="checkbox"/> Physique	20(50%)	5(16.7%)	6(12%)	1(5%)
	<input type="checkbox"/> Social skills	10(25%)	6(20%)	5(10%)	2(10%)
	<input type="checkbox"/> Aesthetics	5(12.5%)	4(13.3%)	2(4%)	2(20%)
		40	30	50	20

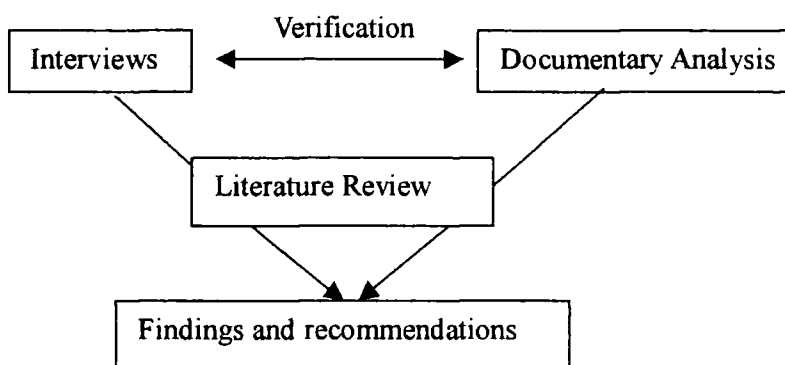
Remark:

Macao did not have the school places allocation system. Admission of students to primary or secondary schools depended on their results of the entry examinations conducted by individual schools. It was quite different from the admission policies in China, Taiwan and Hong Kong. They had their school places allocation systems in which the admission of students to primary or junior middle/ secondary schools depended on residency of the students.

Other relevant sources for study

I really find taking notes, making summary of the interviews and grouping the opinions collected very useful because it permits me to compare, see the whole picture and draw conclusions more easily. However, face-to-face interviews can only give us some empirical findings, we need more evidence to support the findings. In addition to interviews and observational data, educational policy statements, plans and statistical reports are gathered through the homepages of these places. Moreover, as many of the debates over education in these places are expressed in editorials in the major newspapers, I have quoted at great length excerpts from newspapers and magazine articles. But, of course, I have to translate some Chinese terms into English. Basically, all these data are based on both English and Chinese sources, supplemented by interviews with informants from these four places.

The research approach adopted is shown diagrammatically in Figure 1.1.



Every effort has been made to check consistency of information across different sources. I hope this triangulation effect will make the thesis more reliable.

Limitations

Most of the empirical analysis of this study is based on case studies, plans and statistics, official documents and relevant literature of examination policies and practices in China, Taiwan, Hong Kong and Macao. Although these places have same Chinese origin and similar traditional culture, yet they are sufficiently contrasting in their different social development strategies. One has to bear in mind, of course, that comparability in this case is limited by a number of different conditions, and that only similarities and differences of a very general nature may be defined when comparing the development patterns.

Besides, there are other limitations for the study. First of all, interviews take time. As I am the only interviewer, what I can do is to narrow down the number of samples to be interviewed. I can only focus on interviewing teachers, students and parents in the secondary schools. Of course, the interviewees all understood well the situations in the primary schools as they all had experiences on this.

The time schedule is another limiting factor. The time is very tight as the research is being conducted as a part-time project which restricts the availability of time for me to study the relevant literature and documents and to carry out the research. A second factor is the stress from my full-time job. It is demanding and I have to spend a lot of time on my daily

work. A good balance on the time constraints between work, family and study is crucial for the success of the thesis.

End Notes for Chapter 2

1. Although the details of the schools are kept by the Education Authorities, it is the usual practice for them not to divulge the status of the schools officially to the public. Strictly speaking, a popular school is one that most parents want their children to study in. So popularities are good indicators to show the status of the schools in the places.
2. Most of the people remembered well the government would take revenge for their previous sayings after a few years late. This had often been practised in China in the Cultural Revolution.

Chapter 3

Why have examinations become progressively more prominent nowadays?

From the time students enter the school system, they confront a barrage of tests. Assessment events occur at the end of a course, term, year or a major stage in the education system (end of primary, lower, or upper secondary school, completion of a degree at a tertiary institution). Some of these tests are chosen or created by their classroom teachers, but many are imposed from outside the classroom. These externally mandated tests are administered by various agencies for different policy purposes. For simplicity I refer those external tests which are held at the end of major educational stages as examinations.

In this thesis, I am not concerned with the internal tests set by teachers at regular intervals and evaluated by them, though they play an important part in the teaching and learning processes and in the inner organization of the school. What I have tried to deal with is the public or external examinations which affect everybody in the society.

The development and uses of public examinations are almost a controversial issue in our societies. Different stakeholders may have different opinions about examinations. Some suggest the abolition of examinations while some propose the introduction of more examinations in the education system. This kind of debate has never been stopped. Although the findings in Chapter 2 help us understand empirically the ideologies of most Chinese people towards examinations, it is time for us to find out the reasons why examinations have become more progressively prominent nowadays in our societies.

Reasons for the examinations becoming more progressively prominent

In the contemporary society, examinations have become increasingly multi-purpose. Examinations are employed to bring about qualitative improvement in education which is basic in the life of people and is able to sharpen one's faculties of mind and helps to grow harmoniously in every sphere of life – Physical, Intellectual, Social and Emotional.

Emotional. Examination systems may be viewed as doing a better job of stimulating student achievement, defining the curriculum for teachers, providing taxpayers and administrators with indicators of school quality, and preparing school graduates for subsequent education and work (Eckstein & Noah, 1989). Examinations can help teachers assure their students' mastery of a prescribed curriculum. Learning programs without examinations are unthinkable for most of the people as well as for the institutions. Examinations are seen as ways to encourage the development of talent, to upgrade the performance of schools and colleges, and to counter in some degree nepotism, favouritism, and even outright corruption in the allocation of scarce opportunities (Eckstein & Noah, 1989). So, examinations cannot be subtracted from the process of education. Both should move side by side.

However, public examinations often place more emphasis on providing information and assistance to the system than to the individual students. Examinations mainly serve to permit conclusions as to whether the individual students have succeeded or failed in completing a certain educational stage and to provide information to other educational institutions, employers, and agencies in society. This information is likely to be instrumental when decisions on selection, placement and employment of the student are to be made (Ridgway & Passey, 1993, pp.57-72).

Although public examinations are obviously not for the diagnosis of strengths and weaknesses of the individuals, and they are never intended to support or enhance instruction, examinations still carry several vital functions in our society.

1. Examinations as fair instruments

Although education shifts from elitism to mass education, competition for popular schools, high prestige universities is still very keen. For example in China, Taiwan and Hong Kong, children at the age of twelve or thirteen years have to take entrance examinations which allow entrance to a range of higher schools. The competition to gain access to the 'best' or 'key' schools is fierce because parents know that there are differences among schools (Cheung, 1997). Although parents understand that examination has negative backwash effects on students, teachers and the society,

admission to these institutions based on the examination results is still considered to be an acceptable fair mechanism (see Table 2.6).

Examinations safeguard equity as the society recognizes achievement by students on a common basis, regardless of their school or social class (quoted in Gill, 1994). Examinations are identified as technologies of fairness, as proven mechanism for ensuring equality (Farrell, 1998). A statement quoted in the Sunday Age, an Australian newspaper, on 14.6.98 best illustrates people's belief that examination is a fair instrument to ensure equality:

“The greatest friend of the working class is what it always uses – the competitive examination.” (Letter to the Editor, Sunday Age 14.6.98. quoted in Lesley Farrell, 1998)

2. *Social functions of examinations*

Hashway (1998) suggests that examinations may be seen as an agent of social change, and Berlak (1992) also indicates that examinations can be used to identify and control social deviants. The division of labour and the management of the country, and how it is regulated and legitimated, has hinged around the role of examinations in the allocation of roles and social selection. The social selection role of examinations has gained increased significance over time as the development of mass education system has required new mechanisms of ranking and sorting between individuals (Broadfoot, 1996). Examinations can act as a fine-grained filter to allow access for the most able to the upper reaches of society. They can defuse social unrest by allowing access to greater privilege to the most able of the under-class and they also have the role of explaining away social inequality in terms of academic merit. Thus, examination can be used to legitimise social inequalities in salary and status.

Examinations have become one of the major sources of information for reducing uncertainty in the determination of individual merit and in the allocation of merit-based educational training, and employment opportunities. In short, the scores obtained in the examinations purport to be the objective measures of individual abilities, talents and potentials (Gifford, 1993). Providing basis for admission, examinations are held for

finding ability and fitness of students for admission to higher course of studies. These provide the minimum essential attainments and attitudes necessary for admission to a particular course of study. This can best be shown with the Hong Kong experience. Hong Kong students have to undergo various examinations or some kinds of assessments for the school places allocation and certification purposes at Primary 6, Secondary 3, Secondary 5 and Secondary 7 respectively. Hence, examinations represent a means not only of training manpower, but also of certifying and legitimising one's qualifications and positions for further selection exercises.

Examinations have served as a ranking mechanism for certification functions into employment, as well as a means by which to motivate and control students. As economic and social life becomes more formalized and bureaucratized, schools are drawn to fit their procedures to the surrounding society. Certificates of completion of a course of study become valuable piece of property, and examinations are a way to ensure that such certificate reflects degrees of learning, rather than simply attendance (Eckstein & Noah, 1989).

Examinations can also be used for resources controlling mechanism. For example in China, examinations for entrance to higher education and higher level technical training serve primarily to control access to severely limited resources, already strained by a shortage of well-prepared teachers, inadequate school premises etc. The number of students admitted for further education depends on the resources available in the institutions and the scores of the examination results of the students (Tsui, 1995).

The selection function of the examinations also gives a clear message to the public that not all children are expected to reach the same levels of achievement and their societal roles are differentiated and specialised. That is to say, even if a society is egalitarian and based upon the concept of equal human rights, their functioning depends upon the fact that not all individuals are expected to perform the same duties and to accept identical responsibilities.

3. *Examinations for accountability purposes*

Testing for public accountability – such quantitative data on school performance generally attracts considerable interest – test scores become the primary measure by which the public judges the success of the schools (Gallup, 1985, 86; Gallup and Clark, 1987). The public and their elected representatives demand assurance the education dollars are well spent, and examination results can be one of the key performance indicators for value-added of the school which is used for the accountability of school to the public.

Many education systems in the world, especially the Chinese ones use student achievement scores to assess the quality of their schools. Student achievement also serves as the major criterion that parents and the public at large use in judging the quality of their children's schools and teachers. The announcement of good examination results can inform the public of their schools' effectiveness. Thus, testing helps schools send the message to the public that schools can be managed (Baker, 1988).

It is obvious that schools require public examination results to demonstrate their merit and advantages over other schools. This need cannot be served well by internal tests alone. The lack of external examination results will generate criticism because the public demands for accountability (Nevo, 1995). In fact, good examination results can gain sufficient physical and human resources by attracting well-qualified pupils to study in the school. Thus examinations can increase or decrease the status of the school within the local community.

Holmes (1911) points out that the basis of the testing policy of the government is the profound distrust of the teachers (pp.107-8). Teachers have to show their professional integrity. To get the pupils through the public examinations is the one concern of the teachers. The success rates of students passing the public examinations are used as popular measures to judge the teachers' quality of teaching or the school's standing.

Apart from schools and teachers, examinations can also be used in the Education Department level as a guide to create policy to support school improvement. It can also

be used to indicate the effectiveness and the efficient spending of public money to the government and the politicians. Good external examination results and international comparison are useful in providing some indicators. Thus, examinations can be used to claim value for public money and to establish a positive public profile for the government.

Tests can also be used to determine the allocation of rewards among individuals, schools or districts. Awarding scholarships may be given to suitable and brilliant students on the basis of the examination results.

4. *Examinations as means for transmission of ideologies and cultures*

There is reason to believe that society has the intention to give examination the task of shaping the larger social reality by disciplining students, teachers, institutions; creating a stick-and-carrot climate of commitment to hard work, competition and struggle; acceptance of or at least adaptation to divide-and-rule reality; subordination to power, authority, and ideology. The degree to which such intentions are emphasized and the subtlety with which they are pursued, vary with the society. One example found in China is that Political education had always been part of the curriculum since liberation in China, and political courses were compulsory not only at the University but also at the primary or secondary levels. Political education became just another academic subject. All the students had to pass this subject before they could be admitted to the next stage of study. Thus examinations have been used as an instrument to indoctrinate ideologies to the students. However, this indoctrination is sometimes not so effective as expected. As Cleverley (1991) points out that it is ironical for students with the highest marks in these political courses turn out to be apolitical and conservative.

5. *Political functions of examinations*

The World Bank suggests that examinations can play a major role in raising educational standards. The release of examination results acts as a policy mechanism not by abetting public rationality, but by bringing pressure to bear on school managers, principals, and even teachers. Very often principals ask their teachers to work harder in order to improve the examination results. Examinations can be used deliberately as a

measurement-driven device which use tests to define educational objectives and to influence what is taught (Haertel, 1989). Indeed, comparative study of examination systems finds its strongest justification when nations seek ways to bring about educational change, especially when the concern focuses on raising the level of school achievement (Eckstein & Noah, 1989). Even though the testing of students remains controversial, many policy-makers in school/government continue to see higher standards as the cornerstone of educational reform efforts, and tests as their operational implementation (Baker, 1988).

The public examinations that are administered by various agencies have different political purposes. The data they yield are used to describe and compare not only individual students, but their teachers, schools, districts and even the country as a whole. The international testing, for example, the Third International Mathematics and Sciences Symposium (TIMSS) etc. puts the pressure on, not just to have information about national standards, but to make comparisons and so to allow competition and comparison to force standards up.

6. *Examinations facilitate formal reporting*

As long as there are students, they have been examined, in one form or another, to determine their benefits and achievements. As long as competence in a subject has been associated with the obtaining of positions, promotion, privilege, licenses, admission to further schooling, or with the mastering of certain jobs and functions, the reporting of student's achievement has also served the needs of recipients outside of the institutions that take care of the education of students.

As long as a subject has been taught in schools or universities, some form of reporting - formal or informal, oral or written - of the outcome of the teaching has been required by those who are in charge of, or pay for, the institution, but often by the individual student as well. Such reporting activity tends to require a basis on which the outcome of teaching is to be judged and communicated. This has tended to stimulate the creation of certain more or less well-defined, and more or less standardized examination systems.

7. *Examinations facilitate mobility of people*

As the 'globalisation' effect increases among our societies, the people everywhere become more and more close. Society needs a mechanism for social mobility. This phenomenon is more obvious in China, Taiwan, Hong Kong and Macao recently because students are provided more opportunities to move and study in these four places. The students' standards required for effective learning have to be guaranteed. Examinations are believed to be a useful tool to find out the students' standards because the scores obtained by them can be evaluated by comparing the depth and breadth of the tests. Thus the quality of students in different places can be assured.

Examinations can increase the mobility of the workforce to the direct benefit of countries which offer the largest salaries if the examination results are internationally recognized. This in turn can undermine the capacity of developing nations to improve the quality of teaching (or industry), because of the outflow of skilled persons. However, the role of assessment to facilitate international mobility has a double edge. For the affluent, it can offer access to universities world wide, and for the less well off, it can allow access to skilled jobs around the world. From the society's viewpoint, widely recognized international standards might act to accelerate the process of redistributing the assets of poor countries to richer ones. This can lead to a drain of the educational workforce.

8. *Educational functions of examinations*

In the Chinese societies, teachers have long been using examination results not only to measure achievement but also to encourage studying (Haertel, 1986; Haertel, et al., 1984). To act as incentives, examinations provide a clear-cut goal before the students to achieve. Students make serious and concerted efforts so as to reach the highest level of achievement. Thus examinations work as an incentive, as stimulation for doing harder work.

Examinations can help teachers in the curriculum-development level to assess the efficiency of new materials and define what is to be learned by students. Examinations can also be used to monitor student performance and to maintain 'standards'. For

instance in Hong Kong, the Education Department tests Chinese, Mathematics and English skills of children in primary and junior secondary schools. These tests are done on national samples at several grade levels, and scores are used only for tracking these skills over time. Examinations, in this sense, serve as a monitoring tool in maintaining academic standards.

9. *Examinations for provision of information*

Examinations can be used in collecting information from one person after another. They help to standardize conditions so that inferences can be made about individuals and groups in a well-defined situation. An examination, defined by Cronbach (1984) as a systematic procedure for observing behaviour and describing it with the aid of numerical scales of fixed categories, is a very powerful tool for assessment.

Examinations, in the broad sense, are a kind of activity in our society to measure, to test, to check, to evaluate and to discriminate our morals, knowledge, abilities, physical fitness etc. from different individuals. In the narrower sense, examiners who base their wish on the need of the society, the contexts etc. use a certain examination mode or method, to choose suitable contents for the examinees on their moral, learning, knowledge, skills, and fitness to carry out a systematic testing and discrimination activities.

However, we have to take care of the information obtained from the examinations for these activities can be classified into three kinds of testing according to the information provided.

Norm-referenced testing

A test has discrimination function which means examination can discriminate students' relative standards in different levels. This kind of test is called Norm-Referenced Test (NRT). The NRT results can reflect the relative positions of students attending the test and thus can classify them into different grades by using items with different degree of difficulties. It is such NRT that is commonly termed for discrimination test.

To facilitate the discrimination to work properly, NRT is thus characterized by two concerns. One is about the sample used to establish these norms. The sample has to be large enough and has to be typical of the population to which reference is to be made, and the distribution of results should follow the normal bell-shaped curve. The second concern is about the selection of the items used. The purpose of the test is to discriminate, to spread out the population.

This approach to test construction has some advantages. For example, it offers ways of examining the consistency of a person's preferences. It can be used easily to determine grades of candidates in some public examination contexts. However, there are difficulties in using such a scoring system to make predictions. Information obtained from NRT is often inadequate for decisions about how well a particular student is doing.

Criterion-referenced testing

Examinations are collection of data, using several measurement messages to judge and evaluate the processes according to a certain educational objectives, aims. Examinations, through testing, obtain the basic scores of individuals with reference to their other test results. Analysis and diagnosis can be carried out in accordance with educational aims and objectives to confirm the real academic levels of students, teachers' teaching standards and the reasons for any problems which arise.

So, instead of comparing how a person stands in relation to other people who have taken the test, there is an alternative approach to scoring and interpreting tests. This approach to scoring based on the performance of the student in terms of the actual skills or tasks that are included in the test is called Criterion-Referenced Test (CRT). CRT contains items constructed according to learning objectives and skill requirements. Everyone who attains or reaches over the prescribed standards is said to 'pass' the examination, or else it is said to 'fail' in the examination. This kind of test reflects the absolute relationship between students and the objectives to be learned. Its characteristic is that an award or grade is made on the basis of the quality of performance of a pupil irrespective of the performance of other pupils (DES, 1987c). The assessing function of the examinations depends on the clear, practical objectives. Unclear and impractical

objectives cannot make the examinations function well, i.e. they cannot measure. Hence, to use examinations more efficiently and effectively, the key point is to air out the basic requirements of knowledge and skills, to build up the objectives, standards and test specification table.

CRT has attraction for teachers since it superficially promises to give more meaningful information to learners about their progress. However, whether it can satisfactorily address both of these interests, accountability and improved teaching/learning processes is, however, a key question (Jackson, 1996). A practical difficulty with criterion referencing is that it is not possible to define every component in a domain with such explicit precision that a given test items, or a given piece of work by a pupil, can be assessed as meeting the requirements of the domain. Further problems will also follow in deciding how to aggregate the large and uneven collections of results that any one pupil attains.

Although the syllabuses set for public examinations serve to define the domains that will test, and thereby should underpin the significance of the test results. However, in practice, it is hard to predict what 'level' of thinking a given question will elicit, and even harder to justify the prediction when there are many ways in which different candidates actually respond.

Item Response Theory

Educational measurement faces today a crisis that would appear to threaten its very foundations. The essential problem is that the view of human abilities implicit in the Classical Test Theory¹ is incompatible with the view rapidly emerging from cognitive and educational psychology (Frederiksen et al., 1993). Learners increase their competence not by simply accumulating new facts and skills, but by reconfiguring their knowledge structures, by automating procedures and chunking information to reduce memory loads, and by developing strategies and models that tell them when and how facts and skills are relevant. The types of observations and the patterns in data that reflect the ways that students think, perform, and learn cannot be accommodated by traditional models and methods. Black (1998) concurs that the standard methods of test

theory do not suffice for solving many problems cast in the framework of what we are learning about how people acquire knowledge and competence.

A new test theory, the Item Response Theory² (IRT) can be brought about by applying to well-chosen cognitive models the same general principles of statistical inference that led to standard test theory when applied to the simple model. At the heart of IRT is a mathematical model for the probability that a given person will respond correctly to a given item, a function of that person's proficiency (ability) parameter and one or more parameters for the item. The item's parameters express properties such as difficulty or sensitivity to proficiency. The item response, rather than the test score, is the fundamental unit of observation. If the IRT model holds, responses to any subset of items support inferences on the same scale of measurement. This conceptualisation opens the door to solving many practical testing problems that were difficult under NRT or CRT. Australia has a strong hold in this development. As technical details for the IRT are out of the scope of this thesis, readers can consult literature by Hambleton et al. (1991).

10. Examinations for the bases of decisions or actions

In any society a multitude of decisions and actions are taken to filter and select individuals for opportunities, positions, jobs and privileges. Due to the complexity and the division of labour characteristic of modern society, the competence is provided by educational institutions rather than by the agencies, companies, or institutions, that employ such professionals. These, in turn, therefore need to be equipped with some form of a 'passed' stamp or a license to practise their professions. The decision of which candidates should or should not be awarded a passed stamp inevitably implies the application of some form of assessment procedure. Such binary directions (passed, non-passed) are not only used to determine who can be licensed to practise professions, but they are also the crucial factors in determining who can be promoted to the next stage of opportunity or career e.g. to the next class in school, to a selective educational system or institutions, to the next rank in the hierarchy and so forth.

The above arguments lead us to conclude that examinations nowadays are in fact

serving a variety of purposes for different stakeholders in the community though they may not necessarily be compatible. There is an interesting question, “What happens to the society if there are no examinations?”

What happens to our learning society if there are no examinations?

There is always a debate about the effect of examination on teaching. Critics argue that teachers will teach those contents that are to be tested. This will limit the content levels to be learned by students. If there are no examinations, teachers will have no clear teaching objectives. This argument was supported by about 82.5% of the interviewees (see Table 4) that as no one ever tested what was taught, it did not matter what was taught. They confessed that they would not bother to complete all the syllabuses if no examinations were in the education system. The breadth and depth of the subject contents would surely be cut short. Fitz-Gibbon (1996) also points out in her *Monitoring Education* that in many American schools, the algebra course was only partially covered; the geometry course was rarely finished by the end of the year because there was reliance on teacher-given grades. This shows that examinations can drive teachers to teach what is to be tested, but teachers will lose their direction on teaching if no examinations are to be used. Thus, an examination is like a ‘baton’ as it directs the teaching and learning at which it points. The baton can be wielded with beneficial and detrimental effects. Hong Kong provides a good case study in this respect. In 1978 the Secondary School Entrance Examination (SSEE) was abolished and Academic Aptitude Test (AAT) was used instead. Almost immediately, there came a general complaint from primary school teachers that pupils would not ‘work’ because the examination had been removed. Presumably, too, teachers had become so used to being praised and blamed on the results of an examination that they could not teach properly without the examination incentive (Board of Education, 1997).

Another prominent example was found in China. The examination system has been abolished in the Cultural Revolution for ten years. The adverse consequence was enormous and it had caused a broken stratum in the intellectual hierarchies that took a long time to recover (Cheung, 1997; Yuen, 1999). The loss of intellectuals in the

Cultural Revolution was that without any public examination results, universities had to admit their students by the recommendation system. Most of the admitted students were workers and peasants with only primary or junior middle education levels (Senior Middle: 20%; Junior Middle: 60%; Primary: 20%) (Liu, 1995). They were academically under-qualified. Basically, no teaching could take place. Professors taught basic course on grounds that the worker-peasant students demanded them (Cleverley, 1991, p.203). Students obtained their degrees after one or two years of 'teaching' together with some practical experiences in the factories. The graduates were of poor academic quality. The national examination was restored in 1978 and the first batch of students graduated in 1982. So there was a gap of about 16 years (1966 – 1982) to produce qualified university graduates³. Cleverley (1991) points out that an estimate of 1.5 million specialists 'lost' (p.178). All these show the significance of being no examinations in the education system. Hence, we can conclude that education system cannot be run properly without examinations.

Reflections

Examinations raise fundamental issues about our beliefs on the knowledge in general, teaching and the educational process, and the relationships between the individual, school and society. Things become clearer about why examinations become more progressively prominent in education system if one considers the main sociological functions performed by examinations in relation to various aspects of life. However, before we accept the powerful functions of examinations, we have to bear in mind of their side-effects to the society.

1. There is a danger that examinations are becoming ends-in-themselves, almost independent of the educational process. Children and young people are deeply affected by all this. They are often made very unhappy by the pressure to 'get through' examinations. Some believe that failure is a tragedy, their whole lives ruined by it. Others feel that they have let down and disappointed their parents by not 'doing well' as had been hoped. Many teachers narrow their vision, myopically and anxiously concentrating on 'covering the syllabus'. In Elliott's research, he comments 'If

standards refer not simply to the quantity of content learned, but also the quality of thinking involved in that learning, then the public examination system, rather than the teaching profession, could be responsible for the lowering of standards (Elliott, 1988:iii). Examinations are severely criticised for encouraging rote learning, stifle creativity and are difficult to assess objectively. It is therefore that if examinations are worth maintaining in schools, they are also worth guarding against, for there is no doubt they are a two-edged instrument.

2. Examinations can enable self-actualisation such as a mathematician, a doctor etc. They can be a proof of acquiring a range of general knowledge or specific subject matters, or a proof for minimal competency. Examinations can be used to gain access to or be denied a particular career or further education (with direct impact upon income, standard of living). However, these in turn can confer access to a desirable spouse or social class. They can confer or reduce status and enhance social partitioning. Examinations can also reduce self-esteem if examination results are inferior than others leading to disgrace, truancy (Winston, 2000), and even suicide of students.

3. Almost everywhere policies designed to broaden access to education and to promote equality of opportunity are now pursued. The introduction of examinations provides greater equality of opportunity for the people. In consequence, examinations become a major instrument of social mobility and promotion which affects social structure by applying criteria of selection nearly always accepted unconsciously and uncritically. However, if the rules of the assessment game are blurred, those who can interpret the rules are better off than those who cannot. This factor tends to favour members of certain segments of society - defined by economic position and capacity, rank, gender family - more than others. This, in turn, contributes to furthering an 'unequal opportunities society'.

4. Examinations are also used as agencies of political and social selection and to assess the competence of young people to enter adult life. These examinations are supposed to assess the extent to which pupils have the necessary basis of knowledge to profit from this promotion. It seems likely that different types of examinations are

needed for different functions, particularly under modern socio-economic conditions. However, current examination policy and practices involve conflicting interests, divergent aims, and unintended or undesired side-effects. In particular, it is difficult to devise examination systems which at the same time:

- i. allow us to assess, in a valid and reliable way, the knowledge, insights, abilities, and skills related to the understanding and mastering of subject contents in its essential aspects;
- ii. provide genuine assistance to the individual learner in monitoring and improving his/her acquisition of the subject insight and power;
- iii. help the individual teacher in monitoring and improving his/her teaching, guidance, supervision, and counselling;
- iv. assist curriculum planners and authorities, textbook authors, and in-service teacher training in adequately shaping the framework for instruction.

Although there is serious doubt and general scepticism concerning examinations, in particular regarding their validity, society tends, nevertheless, to use them frequently without worrying too much about their drawback. Their rationales may be that examinations have at least one advantage over the informal ones. By being formal, they become visible and hence subject to analysis, debate, and perhaps change. In that way, they contribute to diminishing the anarchy of arbitrariness, the reign of tacit criteria and rules, and even the nepotism that can result from implicit assessment. Moreover, the political activism and the class background cease to be formally recognized as relevant in the resources allocation exercises.

Although there are difficulties involved in devising and employing effective, harmonious examination system, free from serious internal and external problems, examinations are still having a prosperous development nowadays because of their multi-functional attributes. Examinations always fulfil the requirement of several objectives. This supports the idea that the existence of any phenomena must have multi-functions to adapt to the environmental changes, lest they cannot continue. When certain aims are out-dated or not related, examinations still exist with other reasons. This explains why examinations become more progressively prominent in our

education system and the society as a whole.

End note for chapter 3

1. There are a number of shortcomings with the Classical Test Theory. For one, the well-known classical item difficulty index and item discrimination are group-dependent. If the sample group does not closely reflect the population for whom the test is intended, the item statistics and reliability estimates obtained in the sample are limited in their usefulness. Another shortcoming of classical test models is that the scores in the number-correct metric are test-dependent. Test scores rise and fall with changes in test difficulty.

2. Item Response Theory is a statistical theory consisting of mathematical models expressing the probability of a particular response to a question as a function of the ability of the candidate and of certain characteristics of the question. Its item statistics are not group dependent and the scores describing candidate proficiency are not dependent on test difficulty.

3. Higher education students could not reach the standards expected of them as they were starting from the low base provided by their incomplete schooling. Graduates were often technically not capable of doing the jobs that they were allocated. Research activity virtually ceased. The age structure of most professions began to display an increase in average age as fewer new recruits became available. In school academic knowledge was devalued since it counted for little in gaining access to university. The motivation to study of a generation of children was undermined by the vagaries of the recommendation system and the intellectual development of many was stunted as a result.

Chapter 4

Major variations in examinations in China, Taiwan, Hong Kong and Macao

This chapter mainly concerns with the question “What are the major variations in examinations in China, Taiwan, Hong Kong and Macao?” To better understand their variations in examination policies and practices, it is necessary to study their admission policies for the interfaces of different stages of schooling. A thorough understanding of their educational system and admission policies helps us explore their respective developments in examination systems.

Education system and admission policies in China

China is a vast country with many cities and countryside. Although the education policies should be applied to the whole country, some cannot be carried out smoothly in some places because of the differences in social and economic developments. In this thesis I will only focus on those educationally developed areas like Beijing, Shanghai and Guangzhou etc.

With the ‘Decision of the CPC Central Committee on the Reform of the Educational Structure in 1985’ (Decision¹ 1985), the education system of China is broadly divided into four levels: Pre-school Education, Basic Education, Senior Secondary Education and Higher Education.

Generally children at the age six enter Primary One after having spent three years in kindergarten. A child who does not repeat or skip a grade, and who progresses to the apex of the educational pyramid, will enter junior middle at the age twelve, senior secondary at fifteen, university at eighteen. Although the 6-3-3-4 structure of primary (6 years): junior middle (3 years): senior secondary (3 years): university (4 years) is becoming widespread, other less frequent variations such as 5-4-3-4 are found in some provinces of China. This thesis is mainly focused on the 6-3-3-4 structure.

Admission Policy for the Pre-school Education

Pre-school education is not compulsory in China. Kindergartens can only admit children of ages three through six. Their admission is based on two criteria, residence and age. There is no apparent selection based on intellectual level. Although the Chinese government has issued Regulations on the Management of Kindergartens and Working Rules for Kindergartens in 1981 to provide guidance for the development of pre-school education, the kindergartens are not uniform in quality. Parents are anxious to get their children into the best kindergartens by utilizing the residence and parental connection criteria to the maximum. This is because the 'one-child policy' introduced formally in 1979 has intensified parental and grandparental interest in pre-school education. With only one child for each pair of parents and sometimes four grandparents, the importance of a good early start in education is great.

Admission Policy for the Basic Education

The 9-year basic schooling for all children was implemented under the Law² of the PRC on Compulsory Education in 1986. Children of ages six through fifteen can be enrolled in the basic education. Admission to primary school, like admission to kindergarten, is based officially on the proximity of the school to the home. This principle applies to city and countryside. The drawback is that children are sent to live with grandparents or relatives in order to qualify for better primary schools. When interviewed, 75% of the parents admitted that their children had been sent to live with their grandfathers or even relatives (see Table 2.6).

In 1990 when the junior middle schooling had been universalised, students with a pass in the Primary School Graduation Examination (PSGE) could attend schools close to their homes. The test content and the administration of PSGE are done by individual schools but under the supervision of the County Education Bureau (To, 1999). This means that entry to a junior middle school is guaranteed in the larger cities. The situation is partly true for those primary schools with an attached junior middle school, the need for a selection examination has disappeared. However, in city areas where there are many junior middle schools and distances that are easily travelled, there remains the need to select students for different types of schools. This means that

selection to the 'key'³ school still exists. I was told by many people including parents, students and teachers that albeit the 'key' schools now officially exist only at senior secondary level partly as a result of popular dissatisfaction with selective education at lower levels, 'key' schools in the basic education remain. This means that they are often known locally as such, even if the formal title is withdrawn. These schools hold selection tests for the students. Thus primary students are heavily caught up in examining for entry to good middle schools (Cleverley, 1991, p.237).

Admission Policy for the Senior Secondary Education

Since the 9-year universal education ends at the end of the junior middle education, government has no obligation to guarantee every junior school graduate to have a place in the senior middle school. Moreover, as the direct result of the Decision 1985, the general academic and vocational education tracks are introduced in the middle schools. This has resulted about a significant structural change in the senior secondary education. Much of the selection has already taken place at the point of transition from junior middle to senior secondary where students are tracked into a diversified structure of opportunity. Admission to senior middle is based on the results of Junior Middle School Graduation Examination (JMSGGE) and Senior Middle School Entrance Examination (SMSEE). The JMSGGE is a graduation examination in which all the junior middle students have to take part. The JMSGGE test papers are prepared by the local education authority and the test is conducted in individual schools. If students want to continue their studies in the senior secondary education, they have to sit for the SMSEE which is a unified examination administered by the city or provincial level bureau of education.

Admission Policy for the Higher Education

In contrast to the admission policies in primary, junior middle and senior secondary, admission to higher education follows a country-wide unified procedure. The National Examination Agency of China (NEAC) controls the entrance examinations for universities, adult education institutions, teacher training colleges, postgraduate courses and government service (Lu Zhen, 1988). Its members consist of government officials, university academics, principals and teachers.

University entrance is open to all senior secondary graduates under twenty-five years. Selection is based on the rank-ordered scores of National Unified College Entrance Examination (NUCEE). The number of students enrolled is determined by The State Education Commission and Ministry of Finance. They determine the number of enrolments by setting the cut-off scores which are based on employment plans and resource allocations to higher education each year (Tsui, 1995).

The cut-off scores are province-based. Each province has its own cut-off scores according to the NUCEE results of students in that province. Usually larger cities require higher cut-off scores, and the 'key' institutions require even high scores. The table below shows the cut-off scores for different types of higher education in 1998:

Table 4.1: Cut-off scores for admission to higher education in China, 1998

Types of Tertiary Institutions	Cut-off Scores
Key Universities	Highest score 710 – 720 Lowest score 475
General Universities	Not lower than 450
Higher Technical Colleges	Not lower than 400
Private Universities	400 or below
Middle Technical Colleges	400 or below
5 subjects are counted and the score for each subject is 150.	

Source: www.losee@asiaonline.net

Although the percent of students to be admitted varies in different provinces, about 2-3% of the age cohort can be admitted to higher education each year (Tsui, 1995).

Prior to the occurrence of the Cultural Revolution, students have to sit for an entrance examination at the end of the senior secondary education before they can be admitted into the colleges. However, the college admission policy in China has undergone radical change since the Cultural Revolution. During the 'Ten Years of Turmoil' the competitive entrance examination was discontinued in recognition of Mao's belief that 'Education should connect with practice, intellectuals should link with workers and peasants' and that 'university students should be selected from those that have some

practical working experience' (Mao, 1964). The selection system that identified promising youths for university study became one based on the sponsorship of the masses (quoted in Unger 1982). Provincial Committees allocated a quota of places to factories, People's Liberation Army Units, and rural communes, and the local leader selected students. Class origin and political activism were central attributes of the selection system.

The watershed of 1976 heralded the return to the NUCEE as the main, if not the sole criterion for college admission. In October 1977 the People's Daily announced that the NUCEE would be restored and would safeguard the socialist requirement for an evaluation of the moral, intellectual and physical abilities of the student (People's Daily, 21 October, 1977).

In 1987 new regulations for entry to the higher education were introduced. Besides the attainment in the NUCEE, the eligibility of a student also depended on the political assessments⁴. The students' school or work unit has to provide an assessment of political attitude, ideological consciousness and moral qualities of the students. A further criterion of eligibility is a physical examination⁵ (Cleverley, 1991, p.262). Those who failed to pass the physical assessment might not be enrolled even if they had passed the entrance examination

Admission Quota for higher education other than Academic Excellence

The Decision 1985 has imposed on some aspects of the link between schools and higher education (Huang, 1984). About 3% of the university intakes each year are admitted without taking the examination under the 'exceptional student quota'. This indulgence has been introduced to reward excellent students and to ensure that students who perform poorly at examination through anxiety, stress or factors beyond their control can be selected. The quota includes students who display the 'three goods' consistently in their school careers (academic achievement, health, leadership). However, this brings out the problem about the differences in standard among schools. There is another quota which allows the institutes to admit ineligible students if they can pay for the school fees by the department or by individual student. Payment for a place in the higher

learning institute has further been enhanced since 1997. The requirements for admission to the higher learning institutes will be the passing scores of the NUCEE and the payment of school fees. That means all the eligible students have to pay for the fees before they can be admitted to the universities.

A general perspective on examination policies and practices in China

Prior to 1963, examinations were very competitive in China. The CPC issued the 'Temporary Work Regulations for Full-time Middle and Primary Schools' in 1963 to stress that external examinations should not be given as a means of oppressing the students. Students should be given a task to complete within a specified period of time, after which a written paper should be handed in. Chairman Mao further elaborated the regulations in 1964. He criticised the examination and the grading system in China as follows:

“ Our present method of conducting examinations is a method for dealing with the enemy, not a method for dealing with the people. This is still the same method as the old eight-legged essay⁶ used before 1949.” (Mao, 1964).

In 1966, Cultural Revolution occurred in China. It lasted for 10 years till 1977. It brought radical changes in the examination system in China. In January 1967, the CPC announced that all examinations, including the university entrance examination should be abolished. In short, there should be no examinations at all. Academic results should be democratically discussed and decided by the 'revolutionary committee' of the Party (Yuen, 1999).

Following the deaths of Zhou Enlai, the prime minister, on 8 January 1976 and Chairman Mao on 9 September 1976, the Cultural Revolution came to an end. After the Cultural Revolution, a number of important decisions on education were taken by the CPC in August, 1977. About 20% to 30% of the in-take should be enrolled directly from middle school (without any working experience). This means that entrance examinations are reinstated in the education system. This re-introduction of examinations shows the change in the examination philosophies of the Chinese leaders.

Deng Xiaoping pointed out in the National Educational Work Conference in April, 1978 that the principal task of the students was to study, and that examinations were an important method of checking on their studies and on the efficacy of the teaching (Deng, 1984). He believed that teaching should be problem oriented and analytical efforts should be stressed on the part of the pupils. The purpose of examinations should test these abilities. He also stressed the need for proper selection methods to admit "only those who are outstanding". Students were thus tested in politics, basic knowledge and ability to solve problems in the restored NUCEE.

The State Education commission authorises the NEAC to prepare the standard examination papers, but the papers are marked in the provinces, municipalities and autonomous regions. Results are made public. Students who apply for admission to arts institutions have to take tests in politics, Chinese, mathematics, history, geography and foreign languages. Those applying for colleges of Science have to take examinations in the same subjects except chemistry, physics and biology for history and geography.

Examination policies and practices for transitional stages in China

The examination policies in China have never been ceased changing since 1949. This is due to many factors but the main reason is to find out a better examination system to cope with the admission policies in the country. Let's study the changes in examination policies and practices for different educational interfaces in China.

From Primary to Junior Secondary

Prior to 1990, primary school leavers had to sit for the Junior Middle School Entrance Examination (JMSEE) if they wanted to study in the junior middle schools. In 1990 the State Education Commission directed that in regions where junior middle schooling had been universalised, the JMSEE would be abolished and students with a pass in the Primary School Graduation Examination (PSGE) could attend schools close to their homes.

The PSGE is organised by the schools but supervised by the County Education Bureau.

The examination is written in three subjects (Mathematics, First Language, Foreign Language). The introduction of the PSGE is not used for selecting students to the junior middle school, which is based now on residence. The purpose of the PSGE is for certification (To, 1999).

From Junior Middle to Senior Secondary

Before the 9-year universal education was adopted, students had to sit for the Senior Middle School Entrance Examination (SMSEE) in order to continue their study in the senior secondary schools. With the implementation of the policy of 9-year universal education, the Junior Middle School Graduation Examination (JMSGGE) has been introduced. Individual provinces and cities administer the examination. Students after spending three years in junior middle have to sit for the JMSGGE. The Certificates of Graduation issued to students by different provinces are recognised equally in the whole country (To, 1999). If the graduates want to move to an academic senior middle school or a vocational secondary school, they have to take the Senior Middle Schools Entrance Examination (SMSEE). The marks obtained in the examination determine the chance of admission which varies from area to area, reflecting the balance between the supply and demand for school places in the areas. The SMSEE is set and administered by city or provincial level bureau of education.

From Senior Secondary to Higher Education

The most noticeable changes in examination policy and practices in China can be found in this stage. The NUCEE was first introduced in 1952, and then abandoned in 1958 at the time of the Great Leap Forward, but restored in 1959, abandoned again in 1966, and restored once more in 1977, following the intervention by Deng Xiaoping.

The NUCEE is a very high-stake examination, and its composition and format greatly influence the pedagogical approach of teaching and learning.

Composition of the NUCEE

The NUCEE is carried out on 3 consecutive days in early July each year, simultaneously across the country. The examination is divided into 2 categories, science

and liberal arts. Both require politics, Chinese language, mathematics, and a foreign language. The liberal arts division adds history and geography, while the science division includes physics, biology and chemistry.

At first the NUCEE focused on fundamental knowledge and skills in order to overcome some of the anti-intellectual legacy of the Cultural Revolution in 1977. Now it encourages students to respect and understand scientific knowledge and the value of research. The politics paper⁷ is currently compulsory for all students who must pass it before they can be admitted to university.

The format of the NUCEE

The Chinese authorities have introduced substantial elements of multiple-choice and short-answer questions into what had previously been a traditional extended-answer type of examination in 1983. Multiple-choice items account for more than 50 per cent of the items. However, this change in the testing format will surely reinforce the already strong emphasis in Chinese schools on rote learning and the recall of 'facts'. Oral test is held only for students who wish to enter foreign language institutes.

As the government realized the backwash effects of the NUCEE to the students and teachers, government introduced in 1993 the Senior Middle School Graduation Examination (SMSGE) which was much easier than the NUCEE. The graduating students take a provincial SMSGE initially, if they pass and wish to enter college, they then sit for the NUCEE in the field in which they intend to study. Only students who reach a prescribed minimum academic level in the SMSGE can proceed to the NUCEE. If students fail in three or more subjects in the SMSGE, they are not permitted to take part in the NUCEE (Yuen, 1995). Students who are qualified will then take three compulsory subjects – Chinese, foreign language and mathematics, and the one or two option subjects in which students will specialise. The SMSGE is administered at the provincial level by the Provincial Bureau of Education in late May while the NUCEE is in early July.

SMSGE allows students to take one subject at the end of first year of senior secondary

course, some others at the end of second year and the rest in the middle of the third year. Hence, the overall final results can be published in time for those passing SMSGE and wishing to try for university entrance to take the NUCEE.

Summaries of developments of examination policies and practices in China

To help better understand of the development of examination policies and practices and admission policies for different educational interfaces in China, various developments are summarized in the Table 4.2 & 4.3. For easy sketching, I draw them in tables as shown below:

Table 4.2: A summary for various developments of examination policies in China

Primary to Junior Secondary	Junior Middle to Senior Middle	Senior Secondary to Higher Education
<p style="text-align: center;">JMSEE (before 1990) ↓ PSGE (1990) ↓</p>	<p style="text-align: center;">SMSEE (before 1967) ↓ JMSGE & SMSEE (1985) ↓</p>	<p style="text-align: center;">NUCEE (1952) ↓ abolished (1958) (Great Leap Forward) ↓ NUCEE (1959) ↓ abolished (1966) (Cultural Revolution) ↓ NUCEE (1977) ↓ SMSGE & NUCEE (1993) ↓</p>

Table 4.3: A summary for the recent admission and examination policies in China

Levels of education	Types of schooling	Ages	Admission criteria	Examination at the interfaces	Remarks
Pre-school education	Kindergarten	3-6	Residence and age	Nil ↓	Some key schools may hold entry tests.
Basic Education	Primary school	6-12	Residence	↓ ↓ PSGE	Some key schools may hold entry tests.
	Junior Middle School	12-15	Residence	↓ JMSGE	For key schools; For streaming to general or vocational schools
Senior Secondary	Senior Middle School	15-18	Results JMSGE & SMSEE	↓ SMSEE	Pass in the SMSGE can proceed to sit for NUCEE
	Senior Vocational School			↓ ↓ ↓ SMSGE	
Higher Education	Colleges and Universities	18-	Results of SMSGE & NUCEE, physical and political assessments	↓ NUCEE ↓	

Education system and admission policies in Taiwan

Taiwan's constitutions clearly define educational opportunity for all children in grades one through six, which are mandatory. The structure of the educational system before 1968 was six years of free and compulsory primary education followed by three years of junior high and three years of senior secondary education. In 1968 Taiwan government promulgated the Free Education Enactment of 1968, a 9-year universal free education programme was put into effect. The new policy indicates the three additional years of free education for children. It also eliminates the requirement to take the previously mandatory Junior High School Entrance Examination (JHSEE). All children of ages from six to fifteen must receive 9-year free education.

The educational leaders in Taiwan today refer to grades one through nine as basic education, though the first six years are really quite different from the junior high school period. The junior high school separates the primary compulsory education from the highly competitive and selective academic high school or vocational/technical institutes.

Recently the school system is 6-3-3-4 in Taiwan. After having spent two years for kindergarten, children spend nine years compulsory education (six years for primary school, three years for junior high school) and three years for senior secondary education (either senior high school or senior vocational school). There are usually four years for university studies except Education and Medicine which require five years for the courses.

Admission policy for Kindergarten Education

Kindergarten education is not compulsory in Taiwan. Children with ages four to six are admitted in the kindergarten. Kindergarten education has developed rapidly since the implementation of the 9-year free education in 1968, and it further developed when Taiwan government promulgated 'Kindergarten Education Ordinance' in 1981. The admission criteria are mainly on residence and age.

Admission policy for Basic Education

Under the constitutions, Taiwan government provides six years free education for all children. The free education covers the whole period of primary education. Children of ages six through twelve can be enrolled in the full day primary schools free of charge.

There was a major change in the structural design of Taiwan education in 1968-1969, when the public junior high schools (also called National Middle School) were established. This gave children the opportunity to continue their education through grade nine without an entrance examination. Before this time, admission to the junior high school was predicated on the score of the JHSEE given to the 6th graders (Smith, 1997).

In 1968 government promulgated 'nine years free education ordinance', children could enjoy three more years of free education in schools till the end of junior high education which was free and open to all who had completed the 6th grade. For the continuity sake, curriculum is designed for the whole basic education, ranging from primary one to the end of junior high school education (Smith, 1997). Primary school children could be admitted to the junior high school without taking any external examinations. They were allocated to the junior high schools according to their living locality. Prior to 1968, junior high schools were rated, and a student who had done well on the national JHSEE might be required to travel a long distance to go to the best school. Those students who had done poorly in the primary grades were encouraged to go to vocational schools.

Admission policy for Senior Secondary Education

Senior Secondary Education is not free in Taiwan. According to the 'Statute for High School' promulgated on 2 May 1979, children of ages fifteen through eighteen could be enrolled in the high schools if they were graduated from the junior high schools and obtained high scores in the Senior High School Entrance Examination (SHSEE) administered by the government.

Admission to the academic high school is predicated on two factors: successful completion of the junior high school curriculum and showing exceptional talents through the SHSEE. The SHSEE is given yearly and is taken by children who are in

their 9th year of school and who desire to matriculate into an academic high school. As such the junior high school in Taiwan is a place of fierce competition.

High schools, like colleges, are rated in order of their quality, and a very high score on the examination allows the child to attend one of the highest-rated high schools. When interviewed, about 60% of parents confessed that they would not consider it an issue if the best school to which they were admitted was some distance from their homes (see Table 2.6).

In 1990 an effort had been made to modify the junior high school system to be less focused on preparation for the SHSEE. Government promulgated in 1990 the 'Scheme of Voluntary Admission for the Graduates of Junior High School' (Trans. KK Tang 1999). This 'Voluntary Admission Scheme' (VAS) began in 1991 as a way to grant 30% of junior high school students the chance to matriculate in an academic high school without taking the SHSEE. The policy was tried out in Taipei in 1992 and was fully implemented in Taiwan in 1995.

The admission criteria for the VAS are based on the assessment results of the students in the junior high schools for three years. The assessment results include the general subject assessment, cultural subject assessment and the integrated performance assessment⁸. During the academic year of grades seven to nine, the child takes examinations for every three months. The scores on the achievement tests, when combined with grade point average and student recommendations from teachers, determine if the child may be admitted to an academic high school and also to which high school (schools are rated based on their historical success in preparing students for admission to universities). The VAS ended in 1996 and admission to senior high schools is again based on the results of the SHSEE.

Admission policy for the Tertiary Education

In 1989, an "Entrance Examination Centre" (EEC) consisting of representatives from public and private universities and colleges, was established through the assistance of the Ministry of Education. The Centre is the sole organisation to oversee research

concerned with improving the university entrance system and examination measures. The EEC suggests the Recommendation Screening Examination Program (RSEP) that allows students to have some alternatives to be admitted into the universities other than admission purely based on the results of the Joint Entrance Examination (JEE)⁹.

The RSEP allows principals of the high schools to recommend students for the universities which admit their students according to the scores of the students' Academic Aptitude Test and the result of the interviews. Although the contents of the interviews are not made known explicitly, the examiners will usually validate the information submitted by the principals and the aptitudes of the students during the interview. The Academic Aptitude Test consists of five subjects: Chinese, English, Mathematics, Natural Science and Social Studies. The Test was held in February for those recommended students. Those who succeed in the test are qualified for the interviews. Under this programme, students can decide their own majors and universities suitable for their own aptitudes and talents, while the universities can sift out students according to their examination performance. The admission result is announced in May. Those who cannot secure a place in the university may be permitted to sit for the JEE.

The EEC also suggested the 1- year University Course and Selection Scheme (UCSS) which was implemented in 1997. Some universities began to experiment with a "Preparatory Study Program", so that anyone who fails in the JEE can become a non-matriculated student and take classes at a university or college which is participating in the program. Once the students has completed the required subjects and earned the credits, he/she can participate in an entrance examination for non-matriculated students the following year and become a regular student if he/she passes the examination.

Examination policies and practices for transitional stages in Taiwan

With the full implementation of the 9-year free and universal education in 1968, the examination policy and practices have been changed accordingly. There are no more public examinations for the interface from Primary to Junior High education.

From Junior High to Senior Secondary Education

The focus of junior high school students is being directed to the SHSEE which will be taken at the end of the 9th year. The SHSEE is usually held in June throughout Taiwan. Successful candidates will be admitted into the Academic High Schools or Vocational High Schools. The SHSEE includes Multiple Choice and Fill-in-the-Blank questions. From 1972 onwards, most of the examination papers are marked by computers, only a few open-ended questions are still marked by markers.

From Senior Secondary to Higher Education

In 1954 there was a University Joint Entrance Examination (UJEE) Program which was given nation-wide each summer. The UJEE was for the higher learning institutions to admit their students who successfully completed the SHSEE and attended an academic high school. The examination consisted of 3 groups, each group consisted 6 subjects, of which 4 were the core subjects. These core subjects were the 'Three People Principles', Chinese, English and mathematics. Other alternative subjects for the groups were:

- Group A: physics, chemistry
- Group B: geography, history
- Group C: chemistry, biology

In 1956 government attempted to introduce High School Graduation Examination (HSGE), and the Admission Examination for the Vocational/Technical High Schools (AEVTHS). However, this scheme had only been tried out for one year (Cheng, et al., 1996).

In 1957 government reinstated the UJEE but the subject grouping system was different from that in 1954. The core subjects were the same but the alternative subjects groups were:

- Group A: history, geography, physics and chemistry
- Group B: Chinese history & geography, foreign history & geography
- Group C: Chinese history & geography, chemistry, biology

However, the subject grouping system in the UJEE was cancelled in 1958. In 1959, the admission scheme was back to 1954.

In 1962, the Joint Entrance Examination (JEE) scheme was introduced, and it consisted of the University Joint Entrance Examination Program (UJEE) for the universities and other tertiary institutions, and a Vocational and Technical Colleges Admission Examination (VTCAE) for the Vocational/Technical Colleges. However, this scheme had been used for only one year. Combined admission was again used in 1963. The combined admission ceased to be used in 1972, and the 2-stage JEE as in 1962 was reinstated into the system. In 1976 the Ministry of Education announced the 'The setting up of the University Entrance Examination Committee' to review the JEE. The UJEE consists of six subjects, of which students have to sit for some of the core subjects. The general subject examination has to be completed in two days. Usually students sit for two subjects in the morning and one subject in the afternoon. The VTCAE consists of the testing of the Physical Education, Music, Art, Drama etc. and other technical subjects in accordance with the speciality of the individual students or the vocational/technical colleges in which they are interested. This kind of examination will be held four days after the general subject examination.

In 1997, a Reformed Joint Entrance Examination (RJEE) scheme was implemented. This scheme mainly concerns with the reforms in the UJEE. The UJEE consists of two parts: the basic subjects and the supplementary subjects. The basic subjects include Chinese, English, mathematics, natural science and social studies. The supplementary subjects include two subjects determined by the faculties of each university. Students are required to pass the basic subjects before they are allowed to sit for the supplementary subjects.

The following tables show the summaries of various developments of examination policies and practices in Taiwan.

Table 4.5: A summary for the recent admission and examination policies in Taiwan

Levels of education	Types of schooling	Ages	Admission criteria	Examination at the interfaces	Remarks
Pre-school education	Kindergarten	4-6	Residence and age	Nil	
Basic Education	Primary school	6-12	Residence	↓	
	Junior high School	12-15	Residence	↓	For streaming to general or vocational schools
Senior Secondary Education	High School	15-18	Results of NHSEE; and Voluntary Admission Scheme	SHSEE	Assessment results in Junior Middle for 3 years
	Vocational High School			↓	
Higher Education	Academic Colleges and Universities	18-	Results of NUCAE or RSS or UCSS	(RJEE)	Pass in core subjects in the UJEE can proceed to sit for supplementary subjects
	Vocational and Technical Colleges	18-	Results of VTCAE	UJEE ↓ VTCAE	

Education system and admission policies in Hong Kong

In 1962 Hong Kong provided 6-year free education for all the children of ages six through twelve. With the rapid growth in economic development, Hong Kong government promulgated the 9-year free and compulsory education in 1978. All children of ages six through fifteen must attend schools.

Prior to 1989, Hong Kong has a dual education system. The Chinese Medium of Instruction (CMI) schools used a 6-3-3-4 school system while the English Medium of Instruction (EMI) schools adopted a 6-3-2-2-3 school system which is similar in UK.

In the 6-3-2-2-3 school system, children after having spent three years in the kindergarten enter primary one at the age of six. Primary course lasts for six years. Junior secondary course lasts for three years. Senior secondary course lasts for two years and is followed by two years of matriculation course. University courses usually lasts for three years except some specific courses such as medicine, architect etc.

Admission policy for kindergarten education

All the kindergartens in Hong Kong are privately owned. According to the Education Regulations, only children of ages three through six can be admitted into any kindergartens. Although pre-school education is not compulsory, most parents send their children to the kindergartens.

There are no admission criteria for kindergartens and the parents are free to choose the kindergartens for their children. When interviewed, about 74% of parents told me that they wanted to send their children not to the nearest kindergartens but to the kindergartens that are closely linked with the best primary schools (see Table 2.6).

Admission Policy for Primary education

Before 1982, primary schools enrolled their own students individually. Most of them used entry tests for their applicants. The introduction of the Primary One Admission¹⁰ (POA) System in 1982 was to control admission to Primary One (P.1) in all government

and aided primary schools so as to eliminate competitive entry and the undesirable backwash effects this would have on kindergarten education. The POA System is primarily district-based, so that students do not have to travel unreasonably long distances to attend primary schools. No tests or examinations of any sort are permitted.

Admission Policy for Junior Secondary Education

In 1962 Hong Kong provided 6-year free education for all the children of ages six through twelve. Children at the end of the free education had to sit for a selective public examination, the Secondary School Entrance Examination (SSEE). Only those who scored high marks in the SSEE could secure a place in the Junior Secondary School.

In 1978 government promulgated the Law of Free and Compulsory Education which provided 9-year universal education for all children from P.1 to junior secondary three (S.3). On achieving universal junior secondary education, the Secondary School Places Allocation¹¹(SSPA) System was introduced in 1978 to replace the SSEE. This system of allocation is regional in concept and is based on internal assessments¹² scaled by a centrally-administered Academic Aptitude Test (AAT), and takes parental choice of secondary schools into account.

Admission policy for the Senior Secondary education

Prior to the introduction of the Junior Secondary Education Assessment¹³ (JSEA) System in 1981, individual schools admitted their own S.3 students. When the JSEA System came into effect in 1981, the allocation of S.3 students to S.4 places was done by Education Department. S.3 students needed to take a public scaling test, the Junior Certificate of Examination (JCE), to establish eligibility rate (i.e. the percentage of S.3 leavers eligible for allocation of subsidized S.4 places). Starting from September 1987, a new method of allocation, the Mean Eligibility Rate¹⁴ (MER) Allocation Method has been introduced. This new method relieves S.3 pupils from taking any public scaling test.

When the students are allocated, they are asked to make a choice on the Science stream or Arts stream in the Senior Secondary course. Of course, their choice should depend on

their own interests and the results of the internal examinations held at the end of the junior secondary schools.

Admission policies for the Matriculation Course

When students have completed the senior secondary education, they have to sit for the Hong Kong Certificate of Education Examination (HKCEE). Students' admission to the matriculation course depends on the satisfaction of the minimum A-Level Entry Requirements (Regulations, 1998). An eligible student must have attained a Grade E or above in 6 subjects in one sitting of the HKCEE; and have attained a Grade E or above in both Chinese Language and English Language in HKCEE.

Although the student's conduct in school is also a factor for admission, but when interviewed with the teachers/principals, about 60 % of them commented that they seldom considered it as one of the admission criteria. Good HKCEE results are the key dominant factors for successful admission (see Table 2.4).

Admission policy for the Tertiary Education

At the time when there were two universities in Hong Kong, each university admitted its own students. The Chinese University administered its own examination, the Hong Kong Higher Level Examination (HKHLE). In 1984, the Chinese University introduced the Provisional Acceptance Scheme¹³, under which applicants are provisionally accepted on the basis of their HKCEE results. The Hong Kong University admitted its students on the basis of the results of the Hong Kong University Advanced Level Examination (HKUALE) conducted by the university.

In the Education Commission Report No. 2 (ECR2) published in August 1986, the Education Commission recommended an integrated two-year sixth form course and the abolition of the HKHLE. In May 1988, the Government announced that all sixth form courses should last for two years following S.5 and should lead to a broadened and bilingual Advanced Level Examination. From that time onwards, the graduates of the matriculation course have to sit for the Hong Kong Advanced Level Examination (HKALE). The results of the HKALE enable students to be selected into the local

universities or act as a credential for them to seek a place abroad.

Examination policies and practices for transitional stages in Hong Kong

Strictly speaking there is a public examination for each transitional stage of the education system in Hong Kong. However, the examination policies and practices have been changed due to the criticism and the dissatisfaction from the public.

Education Department is responsible for the administration of public examinations for the transitional stages from primary to junior secondary, and from junior to senior secondary. The HKCEE and HKALE are conducted by the Hong Kong Examination Authority (HKEA), a public statutory body established under the Hong Kong Examinations Authority Ordinance which was enacted on the 5th May 1977.

From Primary to Junior Secondary

Prior to 1978, students had to sit for the SSEE before they could be enrolled in the junior secondary schools. The SSEE tested for three core subjects: English, Chinese and Mathematics. Only those with high marks could secure school places. It was a very competitive examination. With the implementation of the 9-year free and compulsory education, the allocation mechanism has been changed. Internal assessments together with the AAT are used for allocation. The AAT is administered by the Education department annually in December. The test is used to monitor and to scale internal school assessments. It consists of two papers, each of 45 minutes, one on verbal reasoning and one on numerical reasoning. Both papers are set in the multiple-choice format. The AAT is neither a pure attainment test nor a pure intelligence test. It attempts to measure pupils' reasoning abilities through verbal and numerical media, and are designed to be independent of different school curricula so as to ensure that the results of any group of children are influenced as little as possible by the school they attend (Board of Education, 1997). Although the mechanism has been used for more than 20 years, it is still arguable in its accuracy. As students develop at different rates, and their future performance is not entirely predictable, it is questionable as to whether the placement of students into different schools on the basis of the AAT, or even

accumulated evidence. It is a procedure likely to include numerous errors or injustices.

From Junior Secondary to Senior Secondary Education

When JSEA was first established, the selection and allocation of S.3 students were based mainly on internal assessments by the schools in a range of academic subjects, which were scaled by the JCE in the basic subjects of Chinese, English and Mathematics. Due to the criticism and the dissatisfaction from the public, the JCE was abolished in 1987. Thus, there are no public examinations at the end of junior secondary education till then. The allocation of S.3 students to S.4 is mainly based on the converted SSPA scores¹⁵ and their rank orders in the schools (JSEA Report, 1999). This shows that the scores of AAT are not only used for allocation of P.6 students to S.1 places but also used for allocation of S.3 students to S.4 places. AAT is indeed a very high stake test for students in Hong Kong.

From Senior Secondary to Matriculation

Prior to 1974 Education Department held two separate examinations for the S.5 students. The Hong Kong Certificate of Education (English) and the Hong Kong Certificate of Education (Chinese) for the students with English or Chinese as the medium of instruction respectively. The recognition of the results obtained by the students in these two examinations was significantly different. The English one was more superior than the Chinese one in the sense that students would have better chances to further studies or employment. In 1976 these two examinations were amalgamated to form the HKCEE.

With effect from 1985, the standard of achievement in each subject is recorded as one of six grades of which A is the highest and F the lowest. Achievements below grade F are designated as 'unclassified'. Grade E is intended to represent a basic level of achievement in the subject and syllabus concerned.

Although a wide variety of subjects are examined, no candidates may sit for more than ten subjects at any one examination. Most of the subjects of the HKCEE incorporate a machine marked multiple-choice paper contributing up to 30-40% of the total scores for the subject.

From Matriculation to Higher Education: The HKHLE

HKHLE was a public examination, the primary purpose of which was to measure the attainment of pupils who had completed a S.6 course of one year's duration. It replaced the former Chinese University Matriculation Examination (CUME) in 1979. The major function of the HKHLE was to serve as an examination for entrance to the Chinese University of Hong Kong, in which most undergraduate courses are of four years' duration. The three-hour multiple-choice questions were set for English Language, Chemistry and Physics, for which machine-marked answer sheets were used.

From Matriculation to Higher Education: The HKALE

HKALE is a public examination which replaces the former HKUALE in 1980. The primary purpose of the HKALE is to measure the attainment of pupils who have completed a matriculation course of two years' duration. The standard achieved is recorded, similar to that of the HKHLE, as one of six grades, A to F, with each grade divided into three sub-grades. Grade E or above in a subject is recognized by the University of London and other British universities as well as a number of other overseas universities as being equivalent to a pass at Advanced Level in a British General Certificate Education (GCE) Overseas Examination (HKEA, 1993).

The use of English Examination, which is not Advanced Level subject, is conducted at the request of the University of Hong Kong to serve its entrance requirements. A separate certificate, which carries a profile of results for each component (Cursory Reading, Comprehension, Composition & Listening Test) as well as the overall grade for the subject, is issued for this examination.

All tertiary institutes use the results of the HKALE for admission purposes. Other employers also make use of the HKALE for recruitment purposes. The HKALE is used as a benchmark for determining the basic salary for certain grades in the Civil Service.

In HKALE, Science examinations include a component of practical work, which is based on a teacher's assessment of a student's work done during the course. This TAS

(Teacher Assessment Scheme) requires a teacher to follow the set procedures, and the assessment may be checked by inspector's visits or by submission of samples of assessed works.

From Matriculation to Higher Education: The AS-level Examination

In ECR2, the Education Commission recommends that, in order to broaden the sixth form curriculum, a new course derived from 'A' levels to be termed Intermediate (I) levels should be introduced. The 'I' levels would be developed from, and as part of, the 'A' level curriculum. They would be 'half subjects' in that they would represent half the teaching time required for 'A' levels, and accordingly they could be used both to broaden the two-year course and to provide a formal exit qualification for those pupils leaving the sixth form without proceeding to S.7. In May 1988 government announced the introduction of the new 'I' level examination which was later renamed as Advanced Supplementary level of examination (AS-level). This change of name is to match with that in UK (HKEA, 1993). The following tables show the various developments of examination policies in Hong Kong.

Table 4.6: A summary for various developments of examination policies in Hong Kong

Primary to Junior Secondary	Junior secondary to Senior Secondary	Senior secondary to Matriculation	Matriculation to Tertiary Education	
			CUHK	HKU
SSEE (before 1978) ↓ AAT (1978) ↓	JCE (1982) ↓ abolished (1987)	HKCE(English) & HKCE(Chinese) ↓ HKCEE (1976) ↓	CUME ↓ HKHLE (1979-1988)	HKUALE ↓ HKALE (1980) ↙ ↘ ↓ HKALE + AS-level (1988) ↓

Education system and admission policies in Macao

Prior to 1978, Macao government did not take up the responsibility to provide any education for its people due to some historical reasons, education fell on the shoulders of the Chinese people in Macao. Thus, Macao's education system was mainly concerned with the development of private schools. In order to provide education for the youth, the schools were first set up by the Churches and was then followed by the Associations, Clans, Kaifong Welfare etc. These were the private schools in Macao. Only a few Government schools were run by the government and they were mainly served for the children of the Portuguese who came to Macao as expatriate officials from Portugal government. The aim of this education policy was to prohibit the Chinese people from entering into the politics and the management levels of the government (Lau, 1995). In fact, a dual system of education was established in Macao during the era of Portuguese administration. Communities continued to provide basic educational skills in which Chinese traditional education was emphasized; however, these were inferior to the other system, which was for the Portuguese and the Macanese¹⁷. According to the statistics from 'Education and Training, 1993/94', there were only 25 government schools but private schools were about six times that of the government schools in Macao. In the educational history of Macao, private schools took up the main responsibility to train up the youth.

The policy changed in 1978, the governor of Macao (Jose E.M.G. Leandro) promulgated the Law on 'Subsidizing the Non-profit Making Private Schools'. Government subsidized the private schools according to their number of classes. On 10 September 1985 Vasco Costa, the governor of Macao, announced to give monthly subsidies to non-profit making private school teachers, M\$500 for secondary teachers and M\$400 for primary and kindergarten teachers. This is the first step for the Macao government to take responsibility for the public education.

There are four types and four systems in the primary and secondary education in Macao. The four types refer to the teaching languages used in schools as shown.

Table 4.8: Medium of instruction used in Primary/Secondary schools in Macao, 1995

	Chinese	Portuguese	Chinese-Portuguese	English	Total
Primary	55	5	4	7	71
Secondary	23	3	1	6	33
Total	78	8	5	13	104

Source: Macao, Governode (1996). Inquerito ao Ensino. Macao: Servicos de Estatistica e Censos

The four systems are like the education systems in China, Taiwan, Portuguese and Hong Kong. Each has different policy. Some adopt twelve years of study but some use thirteen in their primary and secondary schools. The formation of these systems is mainly due to the following factors:

1. About 97% of the people in Macao are Chinese, and they are greatly influenced by the Chinese traditional culture. Although Macao has been ruled by the Portuguese for more than 400 years, the Chinese culture has not been shaken. Thus the existence of the Chinese education system in Macao is undoubtedly.
2. Macao has long been governed by the Portuguese government, it is quite natural for the Portuguese to establish the education in Macao according to their motherland. Macao is a very small city with only 16 square kilometres. Its economy has long been undeveloped, and education falls behind from its neighbouring cities such as Hong Kong, Singapore etc. Prior to 1981, before the establishment of the University of East Asia, Macao did not provide any higher education for the students. If students wanted to receive their higher education, they had to leave Macao to other places such as Hong Kong, China, Taiwan, Europe, America, Australia etc. This gives rise to the China education system, Taiwan education system, Hong Kong education system and even some American education systems in Macao. Every year about 10 universities from China hold entrance examinations for the students in Macao. Students can also sit for various examinations held in Macao. These examinations are GCE, SAT, TOEFL, HKCEE, HKALE, Taiwan universities entrance examinations etc.

In the past, Macao did not have any unified education policy, it did not have any unified educational objectives, too. These made Macao's education in an unsystematic situation. The period of study for students in schools was different from each school. This meant that the study time and the subject contents for the graduates varied in each school. Different schooling systems made the standards of schools vary greatly. Thus the

standards of the students could not be guaranteed. The educational qualifications gained by students in one school were unrecognised by other schools or even by the government. This does not facilitate student movement.

Government did not impose any restrictions on schools for choosing their curriculum, schools could have their own choice on teaching materials. Most of the schools in Macao used Hong Kong textbooks. In fact, the Portuguese government did not try to promote learning and academic excellence in Macao. This reflected the ruling ideology of the Portuguese government in its colony. It was until 1995 the Direcção dos Serviços de Educação e Juventude (The Secretary for Education and Youth) began to plan a unified education system in Macao (So, 1996).

Prior to 1994 Macao did not provide free education for their students. Children attending private schools had to pay for the school fees. Only a few government schools provided 12 years of free education for the Portuguese children from kindergartens to the matriculation classes. Most of them would return back to Portugal for higher education. It was obvious an unfair treatment to most of the Chinese who now asked for a 9-year free education for their children.

In 1995 the Direcção dos Serviços de Educação e Juventude proposed a 7-year free education to their children which included one year pre-school education and six years primary education. This proposal had been endorsed and promulgated by the governor of Macao in Law No. 25 M dated 25.6.1995. The 7-year free education policy was implemented in September 1995. In April 1997, government extended its free education policy from seven to ten years. Students can enjoy free education up to S.3.

Admission policy for Kindergarten

Unlike other places, Macao provides 1-year free pre-school education to the children. Children of ages three through six can be enrolled in the kindergarten. There are no admission criteria for kindergarten and the parents are free to choose the kindergartens for their children.

Admission policy for Primary Education

The duration for Primary education is usually six years, and the average age of children for entry is about six years old. The first four years of basic education is for the primary levels and the last two years is for the secondary preparatory levels. This system is adopted from the education system in Portugal. All the Portuguese or Macanese children of age six can be enrolled in the government schools free of charge. However, no admission system has been set up to allocate students to junior secondary schools. Individual schools admit their own students.

Admission policy for Secondary Education

The duration for Secondary education is five to six years depending on the adoption of the system by the school. If matriculation classes are included, the duration becomes six to seven years. The entry age is about twelve. There are junior and senior courses in the secondary education, and each of them lasts for three years. Senior secondary education is further classified into two parts, the last part is the one year matriculation class. If the graduates of the primary schools want to continue their study, they have to apply for individual schools which they are interested. The following table shows the 1995 statistics of primary and secondary education in Macao.

Table 4.9: Statistics of the Primary and Secondary Education in Macao, 1995

No. of Primary schools	No. of Primary school students	No. of Secondary schools	No. of Secondary school students
127	46703	40	22277

From the figures, we find that the number of secondary schools is far less than that of primary schools in Macao. About 15% of the primary school graduates cannot find a place in the secondary schools (MCEA, 1996, Vol. 8). They have to face the fate that they will lose their study opportunities in the secondary schools after graduation from the primary schools. This brings out a strong link with the prevalence of juvenile delinquency (Chan, 1993, MCEA, 1996, Vol. 3). As the supply and demand for the secondary school places is not in equilibrium, over-enrolment of students are commonly

found in most secondary schools. The average enrolment is about 50 per class, but some even has 60 to 70 students in each class (Hui & Li, 2001).

Admission policy for Tertiary Education

The first tertiary institution in Macao was the University of East Asia which was founded in 1981. Its courses followed closely the matriculation course of the Hong Kong system and its medium of instruction was English. As such, its major intake of students was not from Macao, but from Hong Kong and other parts of East Asian countries (Mellor, 1988). About 60% of students came from Hong Kong (Hui & Li, 2001). This shows that the provision of higher education is not for the needs of Macao. According to Law No. 50/91/M dated 16 September 1991, the University of East Asia changed its name to University of Macao.

Although Macao has only one university before 1981, co-operation between Macao and the universities of China has been closely linked. University entrance examinations for the China universities are held twice a year in Macao. One of its objectives is to have a joint admission to the universities in China and the other objective is specially designed to have joint admission for Macao and Hong Kong students to enter into Guangzhou University and the South China Normal University in China. These two universities are deliberately set up by the government of China for Chinese students outside China.

Recently Macao has six higher education institutions⁸. According to Chapter 6 Clause 28 Paragraph 3 – 5 of the Macao Higher Education (Law No. 11/90/M dated 4 February 1990) that the admission criteria for students entering the University of Macao are those graduate certificate holders who have completed twelve years of school education and passed the assessment test held by the university. That means that the University of Macao operated its first entrance examination in 1990/91 school year. To cope with the diversified schooling systems in Macao, the university provides 1-year Foundation Course for those graduate certificate holders with eleven years of school education. This greatly increases the number of enrolments of local Macao students in the universities. The expansion of higher education is to satisfy the needs of Macao in its transition period, so that the localization policy of Macao can be achieved after the return of

sovereignty to China in 1999. Some institutions select students solely or partly on the basis of school performance reports and recommendations from the school principals. Others conduct oral examinations for applicants. In addition, many students take Taiwanese, Chinese and/or GCE examinations to secure entry to external systems. However, the multiple individual admission procedures of the various institutes of higher education create pressure for students in the secondary schools. The demands can be a considerable distraction for the students, pulling their attention in several directions at once.

Examination system in Macao

Generally speaking, the education situation in Macao favours the setting up of the examination system because selection for suitable students to study in different levels of education is desirable. However, no public examinations at the transitional stages of the education system have been set up by the government or any other examination bodies in Macao before 1990. The reasons for the entire dependence on external provision of school leaving examinations and tertiary education were as follows:

1. Schools had different curricula. It was difficult to assess students with different syllabuses.
2. Students in different schools had different learning objectives. Some aimed at the entrance examinations held by the universities of China, some aimed at the HKCEE or HKALE, some aimed at SAT and TOEFL etc.
3. As all the higher government officials were Portuguese and Macanese, the chances of being selected to take up the government posts were very limited for the Chinese. This meant that academic qualifications were less essential for the students to earn their living. Even though students got good certificates abroad, they were difficult to find suitable jobs which were relevant to what they have studied. This explains why most of the students studying abroad will not return to Macao after completing their courses (Hui & Li, 2001).
4. There was only little difference in salaries between the primary and secondary graduates. They could get better paid jobs only in the casinos which do not need higher education. This explains why most graduates join the workforce after the

primary education.

There are several consequences. In Macao schools provide different curricula for their students depending on the provision of entrance examinations to be prepared for them. It has no formal differentiation system for primary and secondary students. Hui & Li (2001) point out that the students in Macao understand the culture, ideologies of the Hong Kong people and the society as a whole much better than those in Macao because their schools have adopted the Hong Kong Curriculum. Students in Macao are rarely able to move to another school, since their earlier experiences and curriculum do not adequately prepare them for rigorous movement. These attribute to the low academic standards of students in Macao as compared with those of the other three places. The existence of a diversified secondary education system which lacks a unified school-leaving examination leads to two problems. First, higher education institutions, employers and other concerned people lack a common yardstick against which to compare the performance of different students and schools. Second, the multiple demands of different higher education institutions create pressure for students.

To pave way for the return of the sovereignty of Macao back to China on 20 December 1999, the University of Macao held its first entrance examination in 1990/91. This drastic change in examination policy is in line with some policies especially the localisation policy during the transitional period. Government begins to localise its civil servants. Moreover, as the economy of Macao is rapidly developed, the key to success is seen to lie in the development of human resources. Government wants to recruit those people with high academic qualifications. Thus, students' academic credentials become their valuable assets in the society.

To enable students to study freely inside or outside Macao, an official system for the recognition of educational qualifications and academic awards has to be set up. This may drive the government to formulate its examination policy. The Art.121 of the Macao Basic Law supports this idea.

'The Government of the Macao Special Administrative Region shall, on its

own, formulate policies on education, including policies regarding the education system,..., the examination system, the recognition of educational qualifications and the system of academic awards so as to promote educational development.' (Macao, 1993, Art. 121).

Findings and analyses

In order to have a better understanding of the examination policies and practices at different interfaces of the education systems in China, Taiwan, Hong Kong and Macao, examinations in UK are used as reference.

1. Basic Education

With the implementation of the universal education policy in China, Taiwan, Hong Kong and Macao, the education systems of these places are now preparing a large number of students for the societies, rather than targeting an elite few as they did in the past. As such, examinations for selecting elite students for the school places are not necessary. Strictly speaking, there should not be any public selective examinations for selecting students within the 9-year Basic Education in these places. However, Hong Kong still holds a public examination, the AAT, for the students at the end of the primary education. It is believed that the AAT together with the Internal Assessments can be used to allocate students of similar ability level to a given junior secondary school (Review, 1978). From this perspective, Education Department has actually cast the shadow of the 'key' school concept in its education system. Thus, students are forced to enter into a competitive allocation process if they want to study in the junior secondary schools of high ability groups. If we assume that AAT can differentiate students into different ability groups, I am doubtful whether it is the right time to be administered for the primary students. Board of Education (1997) admits that there is some reservation on too early to differentiate students into different ability groups. Let's compare the public examinations adopted at the interface between Primary Education and Junior Secondary Education in the four places with reference to that in UK:

Table 4.10: Recent examinations between Primary and Junior Secondary Education

Place	Age	Grade/Level	Public Examination	Purposes
<i>UK</i>	<i>11</i>	<i>Key stage 2</i>	<i>Key stage 2 assessment</i>	<i>Monitoring standards</i>
China	11	Primary 6	PSGE	Certification
Taiwan	11	Primary 6	Nil	
HK	11	Primary 6	AAT + Internal Assessments	Allocate P.6 to S.1
Macao	11	Primary 6	Nil	

2. *Junior Secondary to Senior Secondary Education*

Senior secondary education is not compulsory in these four places. At the end of Basic Education, students have to take examinations before they can be admitted to the senior secondary schools. Examinations administered at the end of lower secondary school in China and Taiwan determine whether students will follow an academic or vocational program. Nearly 50% of the students enter the Senior Middle schools and 50% to Senior Vocational schools in these two places (Cheng & Yu, 1996). When the students were asked for their preference between senior middle schools and senior vocational schools, they would choose the senior middle school because about 76% of student interviewees thought that more chances would be provided for them to study in the universities (see Table 2.5). It is interesting to know how junior high school students feel about the SHSEE in Taiwan. When interviewed, most students described it as a normal stage in their academic life. As one 9th grader said, “How else can we get into the best high school that will prepare us for the best college” (Interview with students in Taipei, 12 February 1999).

Hong Kong does not have any entrance examinations at the end of the junior secondary education. Students are allocated to different types of schools by the JSEA system. Although tracking in Hong Kong is not so obvious as that in China and Taiwan, close to 85% of the age cohort attend senior secondary schools and 10% to vocational training centres (JSEA Report, 1998).

Besides tracking students into academic and vocational education, students in the academic schools are grouped into Science and Arts streams. This kind of grouping is commonly practised in senior middle/ secondary schools in China, Taiwan and Hong Kong. The objective of streaming is believed to enable students to have more focus on the subjects they will take in the examinations. However, the students who spend their time studying for Science examinations are forced to neglect other important subject areas such as Arts subjects or vice versa resulting in the inadequacy of cognitive development in various subject areas. When interviewed, the public reiterated that the students were ‘narrow-minded’ and ‘high marks low abilities’ fellows.

Table 4.11: Percent of responses made by the parents on students

Responses	China	Taiwan	Hong Kong	Macao
Students are 'narrow-minded' fellows	75%	70%	76%	50%
Students are 'high marks low abilities'	82%	83%	81%	70%

Source: Adapted from Table 2.6

The public examinations adopted at the interface between Junior Secondary and Senior Secondary Education can be shown as below:

Table 4.12: Recent examinations between Junior and Senior Secondary Education

Place	Age	Grade/Level	Public Examination	Purposes
<i>UK</i>	<i>14</i>	<i>Key stage 3</i>	<i>Key stage 3 assessment</i>	<i>Monitoring standards</i>
China	14	Secondary 3	JSSGE & SMSEE	Certification & admission
Taiwan	14	Secondary 3	SHSEE	Streaming
HK	14	Secondary 3	Nil	
Macao	14	Secondary 3	No own examinations	

3. *End of Senior Secondary Education*

The education system in Hong Kong is 6-3-2-2-3 which is the same structure as in UK. This structure is quite different from those in China and Taiwan where the commonly adopted structures are 6-3-3-4. After completing two years senior secondary education, students in Hong Kong have to sit for the HKCEE. It is a very high-stake examination because it carries dual functions i.e. certification and selection. Many students who do not go on to college take the HKCEE because it is a prestigious credential being recognised by the people in the societies. It is generally accepted that without passing the HKCEE jobs are hard to find. If students want to continue their study, they have to work hard for the examination because admission to the matriculation courses depends largely on the results of the HKCEE. In Hong Kong, it is not uncommon for students who do not secure a place in the matriculation course on the first try to repeat their final year of secondary school. Students in China, after spending three years in the senior middle schools, have to sit for the graduation examination. This examination, the SMSGE is mainly for certification purpose. If those graduates want to study in the

colleges or universities they have to sit for the NUCEE.

The public examinations used at the end of Senior Secondary Education are shown below. The functions of HKCEE are the same as the GCSE in UK. They carry both the certification and selection functions.

Table 4.13: Recent examinations used at the end of Senior Secondary Education

Place	Age	Grade/Level	Public Examination	Purposes
<i>UK</i>	<i>16</i>	<i>Key stage 4</i>	<i>GCSE</i>	<i>Certification & Selection</i>
China	17	Secondary 6	SMSG	Certification
Taiwan	17	Secondary 6	Nil	
HK	16	Secondary 5	HKCEE	Certification & Selection
Macao	17	Secondary 6	No own examinations	

4. Senior Secondary to Matriculation Courses

At the end of the senior secondary education, students in Hong Kong have to study the matriculation courses for two years before they can be qualified to sit for the HKALE. As the result, the path for the students to enter into the higher education in Hong Kong is different from those in China and Taiwan.

With good results in the HKCEE, students continue their academic schooling by spending two years preparing for their HKALE. Students working toward their A-level courses usually concentrate on just three subjects (Physics, Chemistry and Mathematics or Biology for the Science stream; Geography, and History for the Arts stream). Students in both streams have to study English and Chinese Language which are the AS-level subjects. Recently schools usually require some additional study in an area outside the student's selected specialization (for instance, liberal studies for science students). However, students in China and Taiwan focus heavily on three core subjects (Chinese, Mathematics and Foreign Language which is most likely English) for their NUCEE and UJEE/VTCAE respectively. Apart from these, students only have to prepare one or two subjects specially required by individual universities. Table 4.14 below shows the public examinations used at the interface between the Senior Secondary Education and the matriculation course.

Table 4.14: Recent examinations between Senior Secondary and Matriculation Courses

Place	Age	Grade/Level	Public Examination	Purposes
UK	18	Secondary 7	GCSE	Certification & Selection
China	17	Secondary 6	No matriculation course	
Taiwan	17	Secondary 6	No matriculation course	
HK	18	Secondary 7	HKCEE	Certification and selection
Macao	17	Secondary 6	No own examinations	

5. *Senior Secondary/ Matriculation Course to Higher Education*

Although examination results have decisive influence on university admission in these four places, physical and moral assessments play a part in China. Students, besides getting a pass in the SMSGE, have to obtain passing grades on physical and moral for their graduation certificate. Only those with the certificates are allowed to sit for the NUCEE. Strictly speaking, university admission depends on the results of physical and moral assessment as well as the results of NUCEE in China. However, examination results are the largest or sole determinants in Hong Kong. In Hong Kong, minimum grades on the examinations are required for admission. Examination results can influence not only the admission of institutions that students can attend but also the subject specialisation they can study. A strong performance on HKALE may not ensure admittance for some disciplines (e.g. medicine, dentistry etc.) in more popular universities. When some of the university students were asked whether their studies in the universities were their favourite ones, most of them told me that they wanted to study medicine and dentistry in the universities, but they had to choose engineering or pure science degrees because their entrance examination scores were not high enough to be admitted in the medical disciplines. It is clear that the better the grade on each examination, the better the candidate's chances of being accepted to the school and discipline of his or her choice.

The NUCEE, UJEE and HKALE have contributed to the escalation of examination pressure on children in lower grades. There is intense competition between 'key' or best schools for places in prestigious universities. Entrance examinations for these schools have become more and more demanding because the most reputable schools attract and admit the brightest students. Backwash from these has led to entrance tests being held for feeder schools. In some prominent primary schools closely associated with 'key' or

best secondary schools, entrance tests have been reintroduced to select those children with the most likelihood of progressing to university level. Thus students' entire schooling is seen as preparation for the entrance examinations that they must pass to enter colleges or universities.

Reforms presently under way in China and Taiwan are to eliminate the external examinations. In China, the '3+X' model has been using in the NUCEE. Students who wish to apply for a specialised discipline have to take 3 core subjects (Chinese, Mathematics and Foreign Language) and X subjects which are required by that discipline of the university. In Taiwan students succeed in the core subjects in the UJEE before they sit for the supplementary subjects. These models are more reflective of the character of the individual universities and are theoretically designed to identify students who are suitable for the education these universities provide. Each department within a university exercises its autonomy by developing its own set of entrance examinations.

In China, government administers school-leaving examinations for its students. Students must pass the school-leaving examinations in order to proceed to the NUCEE. This situation is very similar to that in France where students must pass the brevet in order to proceed to the lycee (Smith, 1994). The great majority of students in China must take and pass some standard examinations (i.e. SMSGE) before they are allowed to proceed for some advanced subject-specific examinations (i.e. NUCEE) for the entrances of next higher level of studies. The public examinations used at the interface between the Senior Secondary /matriculation course to Higher Education

Table 4.15: Recent examinations between Senior secondary / Matriculation and Higher Education

Place	Age	Grade/Level	Public Examination	Purposes
<i>UK</i>	<i>18</i>	<i>Secondary 7</i>	<i>GCE A-level</i>	<i>Entry to universities</i>
China	17	Secondary 6	NUCEE (3+X) model	Entry to universities
Taiwan	17	Secondary 6	NUCAE / VTCAE & Supplementary subjects	Entry to universities
HK	18	Secondary 7	HKALE or AS-level	Entry to universities

Macao	18	Secondary 7	Entrance Examination administered by individual university	Entry to universities
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It is important to note that avenues do exist for students at the end of the senior secondary education in China, Taiwan, Hong Kong and Macao to enter university without taking national entrance examinations. This situation is most prevalent in China during the Cultural Revolution. All entrants to the universities gain entry by recommendations.

6. *Examination bodies*

In China, the NEAC of the Ministry of Education has authority over the content of the curriculum and the content and difficulty level of the examinations, though their development and administration are somewhat decentralised to the provincial education bureaux. The provincial governments develop examinations for their respective provinces as a whole. As the result, the national examinations, often assumed to be single nation-wide examinations, sometimes are sets of examinations from different regions or examination boards. The situation in Hong Kong is different from that in China. The Education Department has considerable control over the content and the administration of the AAT but the contents and difficulty levels of the HKCEE and HKALE examinations are developed and administered by a statutory examining body, the HKEA. In Taiwan, a national curriculum is used and the Entrance Examination Centre (EEC), an examining body, is responsible for the content and the administration of the UJEE. Macao government does not administer any public examinations for the students. The University of Macao administers its own entrance examination. Some institutions may administer oral examination for their applicants.

Although examinations are used for admitting students into universities or colleges, the involvement of universities in the examination systems in the four places are different. The University of Macao has the sole authority in its entrance examination. Taiwan universities have the second greatest involvement in the entrance examinations. The EEC composes of different committees whose members are representatives from universities. For example, the 'Cultural Subject Examination Committee' is chaired by

Taiwan Normal University and members are Universities of Tung Ng, Fu Yan etc. The 'Test Construction Committee' is chaired by Qinghua University and its members are Taiwan University, Taiwan Normal University, Zhonghing University etc.(Cheng, et al, 1996). Perhaps Hong Kong may be the third one among the four to have university involvement. The HKEA has the Vice-Chancellor or his/her representative of each university to act as ex-officio members. They act as consultants for the changes in order to match the latest development in Hong Kong education (HKEA, 1993). The university involvement in China may be the least because the NEAC is under the direct control of the State Education Commission. Although professors from various universities are appointed as members, their influences on examination policy are much less than the other three places.

7. *Consequences of the high-stake public examinations*

Demonstrating the high stakes attached to these examinations is the fact that the examinations used in previous years and their illustrative answers are published in these places, students and teachers study them attentively. The demand for old examination papers is so high that collections of these examinations are published and sold as books. In China, Taiwan and Hong Kong, in-school coaching for examination and out-of-school examination preparation are commonly found and supplementary exercise books are designed in part to prepare the students for the examinations.

A discussion on preparing for examinations would be incomplete without noting some activities beyond the formal education system. In China, Taiwan and Hong Kong, preparing students for examinations is a major industry, consisting of private 'cram' schools and many commercial study guides with old examination papers. Most students in these places prepare themselves for examinations by doing past examination papers for ten or more years. These papers can be bought in the bookshops. A good look at the contents of the past papers suggests much about what students must be studying hard because the examination topics are stable from year to year. Out-of-school preparation for examinations is typical. Some aspects of this are commonly known e.g. commercial availability of books containing previous examinations or the cram schools. The table below shows how students prepare themselves for the examinations:

Table 4.16: Ways of students to prepare for the examinations

Possible ways	China	Taiwan	Hong Kong	Macao
Attending 'cram' schools	54%	80%	76.3%	0%
Hiring private tutor(s) at home	24%	10%	12.5%	20%
Drilling a lot of supplementary exercises	84%	95%	73.3%	80%

Source: Adapted from Table 2.5

Although many students attend 'cram' schools after school, there is a strange phenomenon in Hong Kong nowadays. It is found that many cram schools do not give tuition to those academically poor students instead most of the students with good results in their schools join the cram schools in order to obtain higher scores in the public examinations. These cram schools, besides provide relevant examination-related materials, they emphasize on the examination-taking skills which are not the main concern in the normal schools. So, private instructions are designed to equip students with the skills to pass these high-stake examinations.

Characteristics of some of the places' examination systems cater a slight edge off the high stakes associated with taking these examinations. Hong Kong offers students a 'second chance' – that is, students may study for an additional year (or even more) and retake the examinations. This practice is most common among Hong Kong students, especially those who are eligible to be admitted by university but rejected due to insufficient places in the universities.

Conclusion

Although the government of each place is taking up educational expansion seriously, and the enrolment in each level of education increases rapidly, the provision of school places, especially in the higher education level, is still inadequate. Students have to be 'filtered' successfully by a series of examinations before they can be admitted for the higher education. This 'narrow-gate' approach in education is commonly found in China, Taiwan and Hong Kong.

Among the four places, Hong Kong is the only one to have a public examination in the Basic Education. The AAT is used for allocating primary school students to junior secondary schools. Macao does not have any centralized national curriculum for the children, and the government does not administer any public examinations for them. In China, Multiple Choice questions are gradually used in public examinations because of the large population of the candidates each year and the development of computer technologies in China. In Taiwan and Hong Kong computer-marked scripts are widely used in examinations.

The State Education Commission of China, the Ministry of Education in Taiwan and the Education Department of Hong Kong are able to use the NUCEE, the UJEE and the HKALE respectively as a device to select the most capable students to attend higher education institutions because they have a clearly defined centralized education system. They all believe that examinations are the only effective tools to ensure the academic quality of the students being selected for the institutions. They had experienced the fact that the admission policy by recommendation had resulted in the admission of a number of students who were not properly qualified or motivated for studies. Thus, selection of students based on their performance in the competitive examinations is more reliable. This concept is supported by the State Education Commission which states in its directive that there should be tests to ascertain children's educational levels and verify their grasp of basic knowledge and their ability to analyse and solve problems. Though there must be many reservations about the way the examination system operates and its effects on the teaching and learning in the schools, its development represents a more

efficient allocation mechanism than any other means in the education system.

From the description and analysis offered, however, there are some severe disadvantages to the examination as it now functions. These include problems with orientation (too academic, too little association with the practical world), content (large numbers of recall-based items) and format (all instruments are written, no practical work is required and no credit is given for school-based work). The problems that arise influence the secondary curriculum in a number of ways. Most of the pedagogical teaching depends heavily on chalk and talk in middle schools. Active involvement, designing, exploring, problem-solving, collecting evidence and experimentation are rare events (Lewin, Little and Burrell, 1988; Eraut, Lewin and Little, 1987). For instance, since there is no practical component in the NUCEE, there is little incentive for students to take activity-based work very seriously. The lack of examinable topics inevitably means that they will not be a significant part of the school curriculum. The schools concentrate on what is required - that is academic, memory-based and written activities. Options outside the arts and science mainstream programs are virtually unknown except in schools that are technically and vocationally oriented. In Hong Kong, although there are Teacher Assessment Schemes (TAS) for the HKALE Science subjects, the proportion of marks contribute to the final scores are small. The TAS cannot help to change the attitudes of teachers and students towards examinations significantly.

Although it is not recommended, most of the teachers undertake private coaching for their students. This seldom happens in rural areas and at the primary school in China and Taiwan but it does happen at the secondary school' (Interview with teachers in Beijing, Taipei, 1997 & 1998). In Hong Kong, nearly all teachers spend normal school hours to drill their students with the supplementary exercises preparing for the AAT (Review, 1997). Some schools even start the drilling early in Primary 4. This seriously violates the teaching of the normal curricula in schools.

The public examinations held at the transitional points of the education system are crucial to students. The State Education Commission in China recognizes the negative backwash effect of the dual functions of public examinations to students. It administers,

at various interfaces, the graduation examinations, namely the PSGE, JMSGGE and SMSGE. These examinations only carry the function of certification. Obviously, these examinations contain basic skills and knowledge that students have to acquire during the courses. If students do not want to continue their studies, they can go to work with some qualifications. The Commission also develops other examinations for those students who want to study for the next stage. These are the selective SMSEE and NUCEE. Unlike China, the HKCEE is an examination for both certification and selection. It is obviously a norm-referenced test which provides only the relative number of passes and failures in the cohort sitting for the examination in that particular year. The results of the examination, strictly speaking, cannot guarantee the minimum competency of the students. As the result, two commercial chambers in Hong Kong ask for the introduction of the English Language Skill Assessment (ELSA) in their recruitment exercises. The main objective is to test their potential employees English proficiency. This obviously challenges the validity of the HKCEE system.

There is an outstanding characteristic in China's contemporary examination system that is different from other three places. It emphasises on the 'three goods'- the intellectual, the moral and the physical. Thus it has provided the foundation for one of the most comprehensive examination system ever. Nowhere is the stress on the intellectual matched by such a strong emphasis on correct behaviour aptitude and physical ability. However, this seems a dangerous strategy from the point of view of social well-being in general. Unless the educational aim is to create clever criminals, school is the best place for well-being development.

Although admission of students based on the 'three good' has some drawbacks, nevertheless, this practice can be understandable in the limited resources for education as well as the ideological control of government in China. The government has to provide the best resources for the best students in its developmental stages (Tsui, 1995; Yuen, 1999). However, this practice has been gradually changed especially in the big cities such as Shanghai, Beijing etc. Nowadays, admission is largely based on the results of the examinations (Tsui, 1995, p.144; Tai Kung Pao, 17.8.2000).

From the findings, it is clear that major changes in the examination systems have taken place in these places. As the government of each place has been adopting the mass education policy, the abilities of students in each level spread widely. Only one public examination at the end of each level does not work well because it will do more harm to students than benefit them. As a result the examination policies and practices have never ceased to change in these four places in responses to different admission policies.

Within the universal education, most of the students are allocated to schools based on their residency. This brings in the concept of 'local' school in China, Taiwan and Hong Kong, which has traditionally prevailed with primary education, is now, in theory, made applicable to the junior secondary education. It cannot be denied that certain junior secondary schools have an excellent reputations for sending their pupils to the better senior secondary schools, and these schools still attract top-quality students. Most parents have tried their best to make their youngsters attend these schools by using addresses of friends or relatives as the location of primary residency. They do this by changing their addresses or boarding out their child with relatives or friends. The pursuit of the best schools has been intensified by the 'one child' policy in China.

During the interviews with the teachers in China, Taiwan, Hong Kong and Macao about their attitudes towards public examinations, they told me that examinations have many shortcomings. However, when I asked them what kind of schools their children were attending, most of them confessed that their children were attending the 'key' or best schools. Some teachers in Macao told me that they even sent their children to study in Hong Kong for the best schools. It is quite ironic in the sense that although they fully understand the harmful effects of examinations on children, they still force their children to study hard to get into the best schools. Exploring in this may shed some light for us to understand the social conditioning of the examination system in each society.

End notes for Chapter 4

1. The Decision advocates the reform of the education structure in China after the Cultural Revolution. The system is well defined into 4 levels: Kindergarten, Basic Education, Senior Secondary Education and Higher Education.
2. The heart of the Law of the PRC on Compulsory Education was 9-year basic schooling for all children. This pattern would be universal in the cities and in developed coastal regions holding one quarter of the total population by 1990, and in the moderately developed rural areas containing half the population by 1995. Economically under developed areas would introduce compulsory education as circumstances permitted. In fact the Law of the PRC of the Compulsory Education was a timetable for the implementation of the 9-year basic education in different parts of the country.
3. The concept of the key school was introduced by Mao Zedong in 1953, and all provinces were directed to open key primary and secondary schools in 1963. The key schools closed during the Cultural Revolution, and were re-introduced in 1978. In the mid-1980s attempts were made to restrict the growth of the number of key schools especially in kindergarten and primary school levels. In some places the institutions were renamed experimental schools. Key schools were small in number in the basic education sector, however, a substantial number of senior middle schools are key schools in urban areas where they serve as university preparatory schools.
4. Ideological and political criteria also play an important part in the enrolment of university students. If a student passes the NUCEE but has a very poor moral and political record (as revealed by school files), he or she will experience difficulty in gaining admission. One professor in charge of admission in a higher learning institution told me that non-League members were normally refused unless there were insufficient qualified candidates with League membership. Such students' files would be examined extremely carefully for evidence of 'bad' moral behaviour (Interview with professor in Beijing, 8 March 1998).
5. The physical assessment usually consists of three parts:
 - i. Whether a pupil has reached the pass line of state physical exercise criteria or not (these criteria are set by the State Education Commission and applied across the country);
 - ii. The examination scores in the physical education (PE) course; and
 - iii. Active participation in other PE course such as school sports and games and morning exercises. The physical exercise and tests continue at regular intervals and the 'National Physical Exercises Criteria for Teenagers' are used for appraisal of physical development.
6. The old eight-legged essay required students to write strictly on the topics taken from the Analects of Confucius.

7. There has been a debate over whether the examination should be reformed, omitted or included in the NUCEE (Liu, 1984; Ding, 1984). The politics examination has 'two interests' (Ding, 1984) - to select outstanding students and to enhance the teaching of politics in the schools. The former has been problematic since some science and engineering students have found the examination too difficult, though they are exceptional in science subject; the latter has presumed that political education in school should reflect the balance of the material in the examination.
8. The subjects to be tested in the general subject assessment are language, mathematics, social science, natural science and elective subject. Assessments are made three times each year contributing to 75% of the total marks. The other 25% of the total marks are obtained from the daily assessments by teachers.

The subjects to be assessed in the cultural subject assessment are physical education, scout education, art & craft, music and domestic science. The assessment focuses on three parts: knowledge, skills and affective aspects. Usually a grade is given for each subject.

Integrated performance assessment is to measure the daily performance of the students including their participation in group activities, prizes or punishment they get etc. The basic score is 80. Marks are added to or deducted from it depending on the performance of the students.

9. The Joint Entrance Examination (JEE) consists of two different examinations. The Universities Joint Entrance Examination (UJEE) is for students aiming to study in the universities or colleges, while the Vocational/Technical Colleges Admission Examination (VTCAE) is for those who want to continue their studies in the vocational or technical colleges.
10. The Primary One Admission (POA) System was first introduced during the 1982/83 school year. The objective of the System is to control admission to Primary 1 in all government and aided primary schools so as to eliminate competitive entry and the undesirable backwash effects this would have on kindergarten education.
11. On achieving universal junior secondary education, the SSPA System was introduced in 1978 to replace the Secondary School Entrance Examination (SSEE) which was a selective public examination. Every Primary 6 pupil is allocated a place in a secondary school in the public sector. But his chances of being allocated to one of his parents' more highly preferred school depend, among other things, on his position in the order of merit of all Primary 6 pupils of his own school. Since it is virtually impossible for all primary schools to achieve the same standard of assessment, a public scaling test, known as AAT, is held to compare the relative standards of different schools.

12. The internal assessments in the SSPA System are based on the school test results at the end of Primary 5 year and at the end of the first and towards the end of the second term of Primary 6 year. To ensure that pupils receive a balanced education, all subjects taught in the school, except Physical Education in all schools and Biblical Knowledge in some schools, are assessed. Most schools teach and assess Chinese, English, Mathematics, Social Studies, Health Education, Primary Science, Music, Art and Craft. All the pupils' marks for all the subjects of a school are standardized and multiplied by a fixed weightings proportional to their teaching time before they are added up to produce an order of merit for that school.
13. The JSEA System was first introduced in 1981 for the selection of secondary 3 leavers for allocation to secondary 4 places in government and aided secondary schools and other forms of subsidized education.
14. The MER-Allocation Method is that the percentage of Secondary 3 students in a school allocated a subsidized Secondary 4 place is taken as the Eligibility Rate (ER) for that school. The mean of the ER in the previous three years are calculated for each school and applied to the current number of Secondary 3 students in that school, thereby obtaining a quota of Secondary 4 places.
15. During the SSPA process, each student has a scaled AAT score. During the JSEA allocation, the scaled AAT scores in the school are used to convert the rank order of the S.3 students in school to form converted SSPA scores for allocation.
16. The Chinese University offers provisional acceptance to students with good HKCEE results. This scheme serves for two purposes. The Chinese University tries to reduce the pressure of the students from taking the HKALE on one hand and to admit those bright students under this scheme on the other hand.
17. They are the descendents of Portuguese who came to Macao many generations ago. They settle in Macao and treat Macao as their homeland.
18. Six higher education institutes in Macao including
 - i. University of Macao
 - ii. Macao Technology College
 - iii. Macao Tourism Training College
 - iv. Macao Senior Police cadet School
 - v. Kang Wu Nurse Training School
 - vi. Macao Open University

Chapter 5

Societal factors determining the development of examination systems in China, Taiwan, Hong Kong and Macao

In the last chapter I focused on how the admission policies at the transitional stages of the education systems could influence the examination policies and practices in each place. This chapter I try to find out other societal evidence to explain the variations in examination systems in China, Taiwan, Hong Kong and Macao.

Although an examination is a powerful instrument to influence the educational opportunities and social lives of many people in these four places, its development, its content and its existence are greatly conditioned by the societal factors. Thus, the hidden agendas for the examination policies and practices can be recognized from the institutionalisation of the society.

Education systems constrain the development of examination systems

The structure of the examination system and its components depend very much on the structure and constructs of the education system. Examination clings on certain education systems and serves for them. Since there are different education systems in different places, there are also different examination systems in these places.

Before we look at the examination systems in China, Taiwan, Hong Kong and Macao, we have to find out some reasons for the differences in their education systems. The education development in China, Taiwan, Hong Kong and Macao is not balanced. This is mainly due to the different development levels in their social and economic structures. Although they have the same Chinese traditional culture, their developed cultures and educational values are very different. China has a large population but scarce resources for education. Its social and economic developments are underway. The economic developments in Hong Kong and Taiwan are faster than that in China and Macao, and thus, their educational developments are relatively faster. Hong Kong and Taiwan have built up their own localized industrial-economic structures which require a large number of skilful manpower. Their governments have more open attitudes in education and better educational values than Macao. They recognize the importance of education in the development of the societies. However, Macao is quite different from these three places because its economy is mainly based on the Casinos, and the rest of the industries are in a very low level. Basically they are the labour-

intensive industries. The demand for skilful workers is not necessary. As such most of the people do not have the incentives to pursue for higher education because they feel that education is not important to them. Of course the Portuguese government in Macao has its hidden agenda and it has adopted the 'uncontrolled policy' in education. This makes the education in Macao fall behind the other three places. This in turn affects Macao's social economic developments. From these, we can see that different social, economic and political structures are the most crucial factors attributing to the different education developments in these societies.

Education systems in China, Taiwan, Hong Kong and Macao

As the stages of development of education systems in these four places are quite different, their student enrolments should also be different. These differences help to build up different education structures in these societies. Before I try to find out the relationship between the shapes of the education systems and their examination systems, I have to look at the student enrolments in these four places.

Table 5.1: Number of student enrolments in China, Taiwan, Hong Kong and Macao in 1995-96

Education	Type	China	Taiwan	Hong Kong	Macao
Higher Education	Tertiary	2 906 400	470 030	49 000	8 096
Matriculation Education	Matriculation Course	<i>N.A.</i>	<i>N.A.</i>	52 792	<i>N.A.</i>
Senior Secondary Education	Senior Middle/High	7 131 600	255 387	<i>N.A.</i>	<i>N.A.</i>
	Senior vocational	9 393 700	523 412	<i>N.A.</i>	<i>N.A.</i>
	Senior Secondary	<i>N.A.</i>	<i>N.A.</i>	147 508	22 277
Basic Education	Junior Secondary	<i>N.A.</i>	<i>N.A.</i>	259 545	
	Junior Middle/High	46 578 200	1 156 814	<i>N.A.</i>	<i>N.A.</i>
	Junior Vocational	696 900	<i>N.A.</i>	<i>N.A.</i>	<i>N.A.</i>
	Primary	131 950 000	1 971 439	467 718	46 703
Pre-Primary Education	Kindergarten	26 663 300	240 000	180 317	19 770

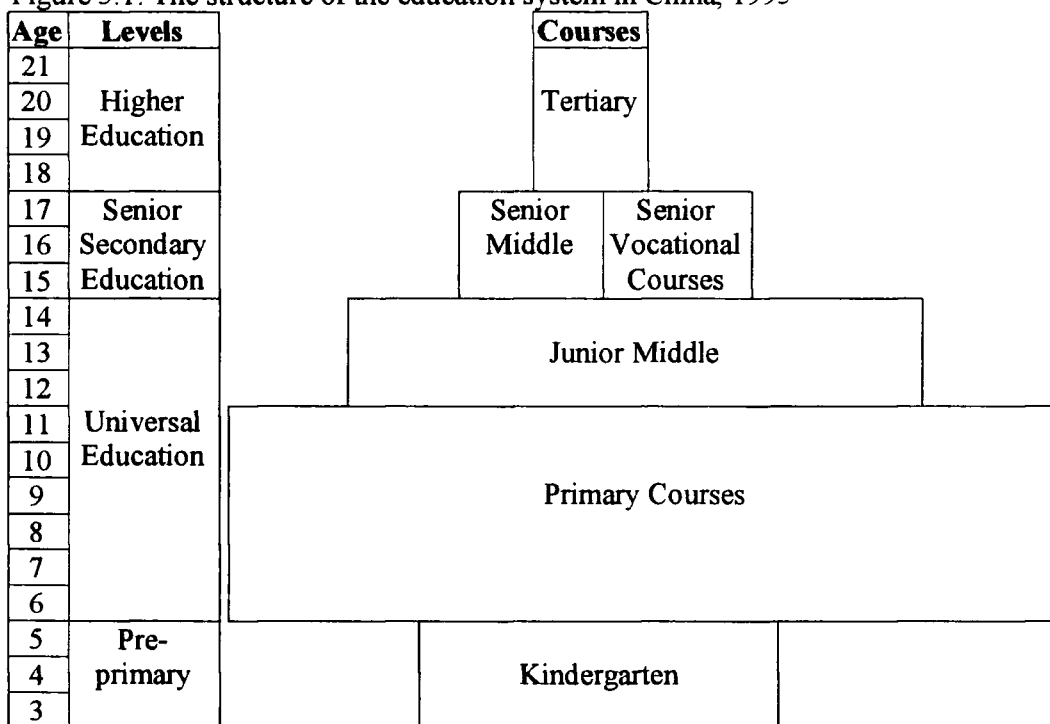
Sources: www.cinfo.org.cn.htm
www.edu.tw/eduinf/data/statis.htm
www.info.gov.hk/censtatd/hkstat/education_index.html
www.dsec.gov.mo/htm

From the above table, I find that China has the largest education system with a total enrolment (from primary to postgraduate full time education) of more than 198 million students. Macao has the least enrolments of about 0.77 million students. Now, I try to draw the structures of the education systems in China, Taiwan, Hong Kong and Macao,

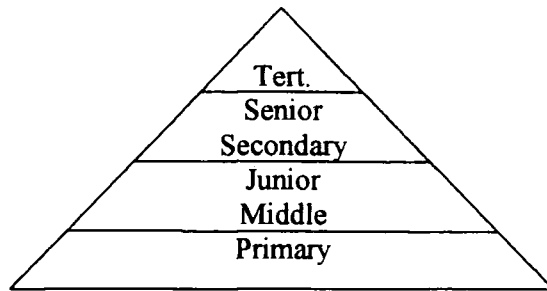
so that I can deduce some reasons for their examination systems. In order to make the different structures of their education systems outstanding, the rectangular boxes in the figures are not drawn to scale. They represent only approximate enrolment ratios between levels.

The following tables show the structures of the education systems in China, Taiwan, Hong Kong and Macao for the 1995/96 school year.

Figure 5.1: The structure of the education system in China, 1995

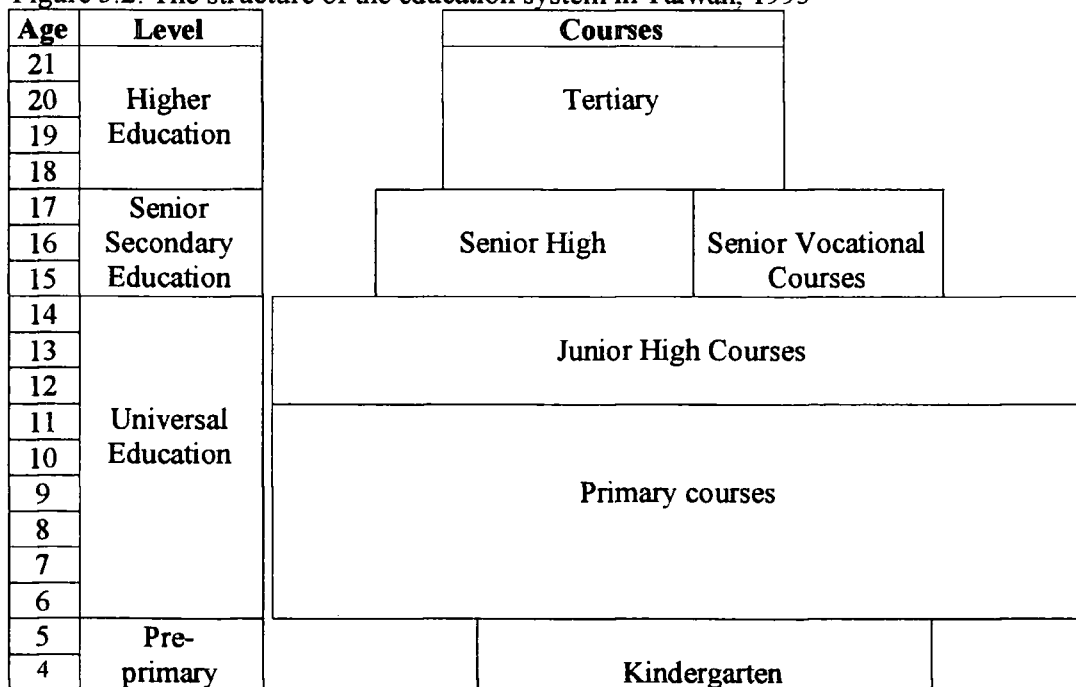


The structure of the schooling system (excluding kindergarten) in China looks like a 'pyramid' as shown diagrammatically below. Its characteristics are broad at the bottom and sharp at the top. It has very low enrolment rate. About 82% of primary school graduates enter junior middle schools (People's Daily, 18 July 1995), and about 45% of junior middle graduates receive senior secondary education while 55% seek employment (State Education Commission, 1995). Overall, about 2% to 3% of the first graders can go on to higher education. Being influenced by this 'pyramidal' schooling structure, China has adopted a selective examination policy to select the brightest children into its education system.



The basic stance of the examination system in China is one of rigid central control and uniformity of administration and content, though some devolution of authority has been made to Beijing and Shanghai. This is because China has a desire to select on a strictly equitable basis the best and the brightest of Chinese youth for university education. The pyramidal situation causes intense competition among students. This combines with the virtually nation-wide uniformity of the examination leads to great pressures on students that are every bit as severe as in Japan.

Figure 5.2: The structure of the education system in Taiwan, 1995



The schooling system in Taiwan looks like a 'trapezoid' as shown below. Theoretically this kind of schooling system usually uses certification examination which only gets rid of the poorest students in the system. All the successful students can be admitted to universities or go to work voluntarily. However, Taiwan uses the selective examination

policy to select the brightest youth to universities. This is mainly due to the employment system in the society which will be discussed later in the chapter.

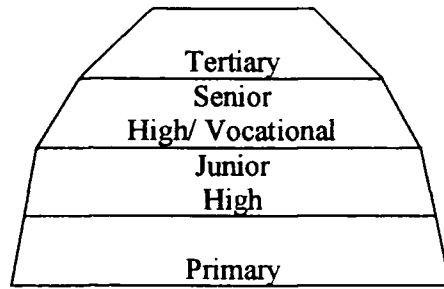
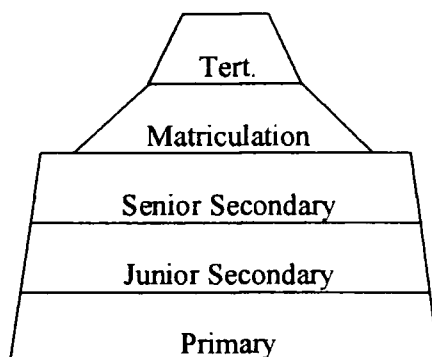


Figure 5.3: The structure of the education system in Hong Kong, 1995

Age	Levels	Courses	
21	Higher Education	Tertiary	
20			
19			
18	Matriculation	Form 7 Form 6	
17			
16	Senior Secondary	Senior Secondary/ Middle/ Technical Courses	
15			Post-3 Craft Courses
14	Universal Education	Junior Secondary/ Middle/ Technical Courses	
13			
12			
11			
10			
9			
8			
7	Pre-primary	Primary Courses	
6			
5		Kindergarten	
4			
3			

The schooling system in Hong Kong belongs to the 'bottle' type as shown below. Nearly 99.9% of the primary school pupils can be admitted in the junior secondary schools. 95% of the junior secondary school graduates can be admitted in the senior secondary schools or Post-3 Craft Courses run by the Vocational Council. However, there is a bottle-neck above the senior secondary education. This is the 2-year matriculation course. Only 32% of the senior secondary students can get into the matriculation course based on the examination results of the HKCEE. When the students are admitted into the matriculation course, 18% of the age cohort can get into

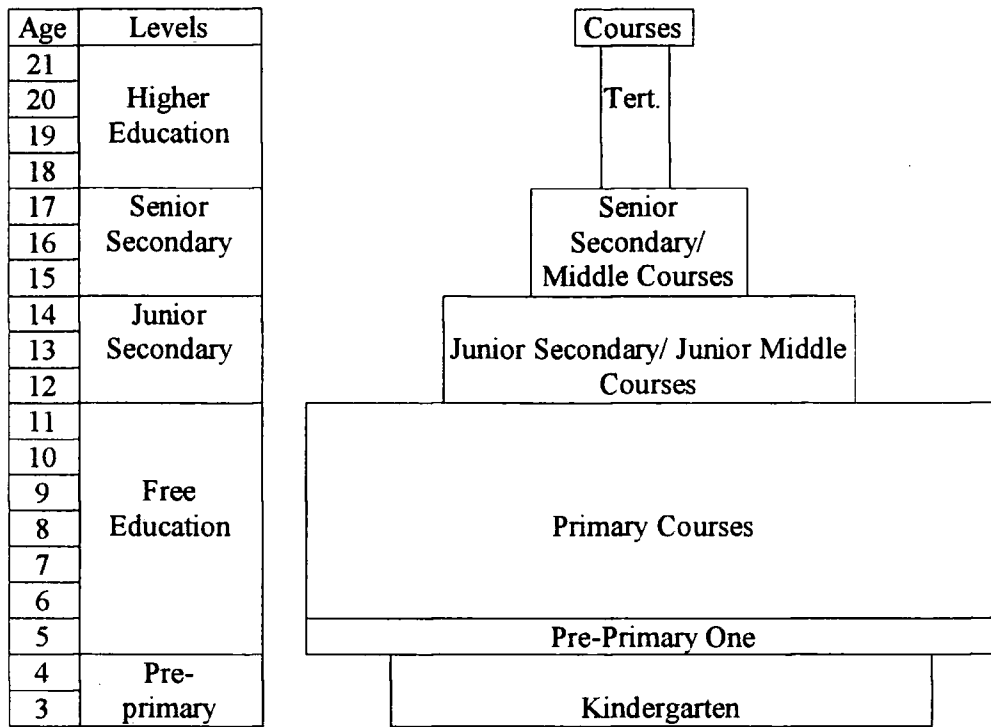
the universities. As such, HKCEE becomes a selective, competitive examination in addition to its certification purpose.



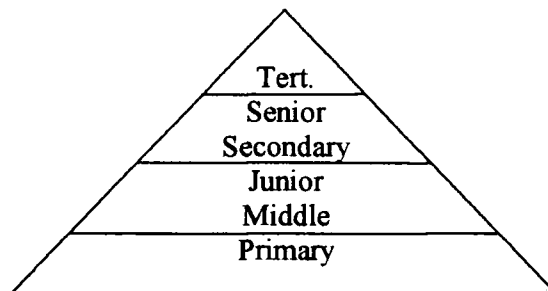
This 'bottle' type schooling system has two distinct features which reflect the British colonial policy in education in Hong Kong. On the one hand, government wants to show off its economic growth by providing sufficient basic and secondary school places for the students, but on the other hand, it wants to filter out the brightest youth and train them up in the universities to carry out its 'elite Chinese ruling Chinese' policy.

Theoretically, Hong Kong has provided sufficient senior secondary school places for the students, there should not be any selective examinations. However, admission of primary to junior secondary schools still depends on the results of the AAT and the internal assessment. The admission of junior to senior secondary schools also depends on the internal assessment of students and their converted AAT scores as discussed in chapter 3. Furthermore, students with good HKCEE results are not guaranteed a place in the university. They have to study the matriculation course for two years. All the curricula taught in the matriculation courses are tailor-made for the university entrance. The contents of the matriculation courses are in great breadth and depth, and are always criticized by teachers as the contents for the first year of the university courses. That is why the duration for the courses in the universities in Hong Kong is usually three years. Students have to obtain good results in the HKALE before they can be admitted into the universities. However, this is an undesirable situation because the cemented part forms the bottle neck of the schooling system. Students have to study very hard to get into the universities. This brings a lot of stresses to them. The bottle-neck effect of the matriculation course causes severe criticism.

Figure 5.4: The structure of the education system in Macao, 1995



Since Macao does not have a single, unified schooling system, some schools adopt the schooling system of Hong Kong and others use China's or Taiwan's system. The above only shows the main stream of the Chinese schooling system in Macao as shown.



However, the Portugal government has a different schooling system for the Portuguese and the Macanese. In fact, the government adopts the 'Top-down system' for the Portuguese and Macanese children. The system provides a direct connection between the Portuguese universities and the secondary schools in Macao. All the subjects taught in the secondary schools are tailor-made for the entrance of the universities. In olden days this kind of system was for the noble people. They did not have to sit for the selection examination. They would be promoted to a higher form if they got pass in the examination at school. Hence 'Top-down system' determines the formation of the certification examination. This system can still be found in the Portuguese schools in

Macao. All the students in the government secondary schools are from the government primary schools. They will secure a place in the government secondary school when they pass the examination at school. The graduates of the government secondary schools can enter into the universities in Portugal direct without taking any external examinations.

After studying the schooling systems in China, Taiwan, Hong Kong and Macao, we can make the following hypotheses:

Hypothesis 1: The shape of the schooling system conditions the examination policies and practices.

From the structure of the schooling system in these four places, it can be classified into three types. The first one is like a 'pyramid'. Its characteristics are broad at the bottom and sharp at the top. It has very low enrolment rate. China and Macao are the examples for the 'pyramidal' type of schooling system. The second one is a 'trapezoid'. Its characteristics are that its passing rate is decreasing gradually. Most of the schooling structures in western countries have this kind of structure. Countries with the 'trapezoid' system usually use certification examination which only gets rid of the poorest students in the system. All the successful students can be admitted to universities or go to work voluntarily. Taiwan belongs to this type of schooling system, however, Taiwan adopts selective examination system instead. The third one is in the shape of a 'bottle'. Its enrolment rates for junior and senior secondary schools are constant for over 95%, but there is a bottle-neck to filter the senior secondary students to attend the matriculation courses. Hong Kong is a good example for the 'bottle' type of schooling system. Only 32% of the senior secondary students can enter into the matriculation courses, and only 18% of the age cohort can be admitted into the universities.

Schooling system determines the existence of examination system, and conditions its development. Basically the places with similar schooling systems may have the similar examination systems, but not all examination systems have to suit their schooling structures. Although China, Taiwan and Hong Kong have different schooling systems, they all have adopted national selection examinations for the entrance of the universities. This explains the fact that some factors such as employment rates and

educational resources etc. are crucial for examination policies and practices in these places.

Hypothesis 2: Provision of general secondary education and vocational education determines the types of examination policies and practices.

According to the schooling systems in the four places, we can see that the provision of general secondary education and vocational education in the schooling system is not the same. This gives rise to different types of admission policies which in turn give rise to different examination policies and practices.

If the total numbers of senior vocational schools and the technical schools are more or less the same as that of the general senior secondary schools, we call this the 'Streaming type'. This means that the junior secondary students have to be streamed into general senior secondary schools or the senior vocational schools. China and Taiwan belong to this type. The 'Streaming type' usually has a certification examination system which provides a lot of subject options for students to choose. In the 'Streaming type', students with passes in the certificate examination will be admitted to the senior secondary or senior vocational schools, or they will be able to find a job in the market.

The second type is called the 'Promotion type' in which the general senior secondary schools are the core structure of the schooling system. Students have to be promoted to the higher level of studies by passing the examinations. Hong Kong belongs to this type. In general, selection examination system is for the 'promotion type'. The subjects for the examination are few, only covering the general subjects of the senior secondary schools. For example, there are Chinese, Mathematics, Social Science, Science, Foreign Language (usually English) in the HKCEE. Students usually sit for a minimum of six subjects with Chinese, English and Mathematics as the compulsory ones. Normally most students take nine to ten subjects in order to get greater chances to be selected in the matriculation course.

We have to note that the 'Promotion type' may change to the 'Streaming type' or vice versa depending on the needs of the society. Let's look at the statistics in China for 1986 and 1996.

Table 5.2: Percent of the students attending Middle or Vocational Schools

Year	Senior Middle Schools	Senior Vocational Schools
1986	81%	19%
1996	43.3%	56.7%

Source: Adapted from statistical reports of State Education Commission, 1986 & 1996

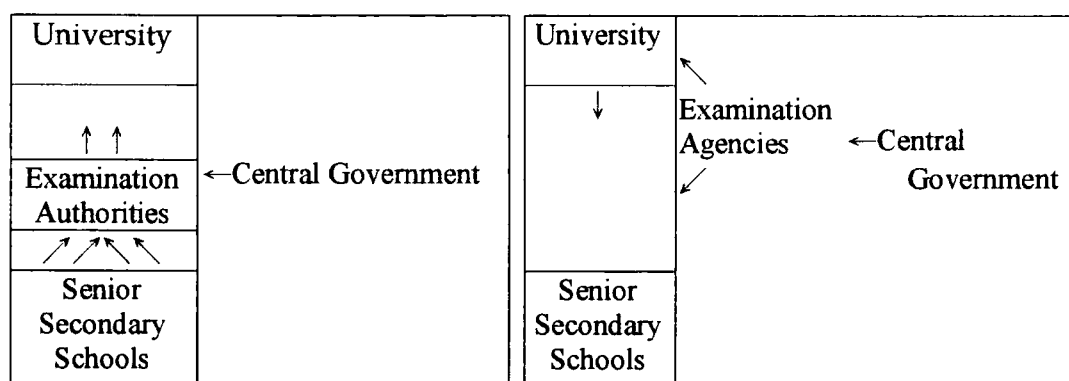
From the perspective of the government, the reasons for this type of development are twofold. One of the reasons is that government wants to raise the quality of manpower for the economic growth of the society. The second reason is to reduce the demanding tension for admission to the Senior Middle Schools. However, from the social perspective, the shift of the types depends very much on the labour market in the societies. If the society needs a larger number of skilled workers for the industries, the employment rate for the technicians is high, the provision of vocational schools will be increased.

**Ways of managing the schooling system can determine
the examination management.**

There are three kinds of ways to manage the schooling system, the centralized authority, the district-based management and the site-based management. Centralized authority management means that the management of schools e.g. education planning, teaching guidelines and teaching contents etc. are determined by government. Obviously China belongs to this kind because it is a central aristocratic country, everything is done according to the planned schedule. Examination system is of no exception, and it is centrally administered. Taiwan and Hong Kong, though they are more democratic in education, also have their examinations been centrally administered. The examination contents, requirements, and methods are consistently administered by the central government. This kind of school management system favours the practice of national unified examination and the examination results poses some kinds of authority. The only difference in examination management between China and Taiwan/Hong Kong is that examinations are completely in the hands of the external examination bodies. Thus examinations in Taiwan and Hong Kong have the socialistic and commercial attributes.

There is another way of managing schooling system that cannot be found in these four places. That is the district-based management. Schools are managed by district government. All the teaching plans, teaching schemes, contents are decided by the district education authorities. They have no unified examinations. USA belongs to this type because each state has its own management system. This kind of managing way usually practises the social public examinations which are administered by the examination agencies. The examination results are treated as some kinds of parameters for reference only. Graduation or admission of students is determined by the schools themselves. The two ways can be shown as follows:

Table 5.3: Ways of managing the schooling systems



However, the above two ways of managing schooling systems are not comprehensive. The schooling system in Macao shows a counter-example. Since nearly all the Chinese schools are private schools without any subsidies from the government, schools are not managed by the central or district government but by the schools' supervisors. This represents the site-based management. Schools design their own teaching plans, teaching schemes and contents. Theoretically, they should have their own examinations. However, nearly all the schools in Macao follow the examination practices of other places because they adopt the curricula of other places (as discussed in Chapter 4). Hong Kong is now moving from centralized authority management to site-based management. It promotes the School-Based Management (SBM). Schools have greater flexibility and autonomy in choosing their resources and management modes.

School curriculum can determine the subjects and contents to be examined.

Examination loses its basic functions if the contents of the examination are out of the curriculum. Control of examinations means control of the curriculum. This is a very powerful social factor (Howson, 1993). As the curricula are different in different places,

the setting up of subjects for examination should be different. Let's first compare the curricula used at the end of the general junior secondary (high) schools and then to see how different curricula condition the subjects and contents of the examinations in China, Taiwan and Hong Kong.

The table below shows the comparison of the curricula used in China, Taiwan and Hong Kong. Macao is excluded from the comparison because it does not have a unified curriculum.

Table 5.4: Comparison of curricula in China, Taiwan and Hong Kong

China		Taiwan		Hong Kong	
Subject	teaching time	Subject	teaching time	Subject	teaching time
Political studies	5.9%	Civic & Moral	4.1%		
Chinese	15.7%	Chinese	15.3%	Chinese	17.8%
Foreign Language (usually English)	11.8%	English	7.2%	English	15.6%
				Putonhua	2.2%
Mathematics	17.4%	Mathematics	9.2%	Mathematics	11.1%
Physics	4.8%	Physics/ Chemistry	6.1%	Physics	8.9%
Chemistry	2.8%	Earth Science	1%	Chemistry	8.9%
Biology	4.5%	Biology	3.1%	Biology	8.9%
History	5.9%	History	4.1%	History	4.4%
Geography	4.5%	Geography	4.1%	Geography	4.4%
		Health Education	2%	Chinese History	4.4%
				Economic & Public Affairs (EPA)	4.4%
Music	2.9%	Music	4.1%	Music	2.2%
PE	5.9%	PE	6.1%	PE	4.4%
Art	2.9%	Art	4.1%		
Craft	5.9%	Live-science or Domestic science	6.1%		
Activities (Class, recreations & club)	8.8%	Activities (Scout, Folk art Coaching etc.)	13.3%	Activities (Civic, moral Environmental, religious & sex education etc.)	(2.2%) optional
District-based curriculum	2.9%	Knowing Taiwan (Social studies, History, Geography)	3% (1%) (1%) (1%)		
		Computer	2%	Computer literacy	2.2%
		Electives	5.1% - 10.2%		
Time for each period	45 minutes	Time for each period	50 minutes	Time for each period	40 minutes
No. of periods per	29-34	No. of periods per	32-37	No. of periods	45-47



week		week		per week	(6-day cycle)
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We can see from the comparison in the above table that China, Taiwan and Hong Kong are all emphasizing the curricula of languages and mathematics. They treat these as the core subjects that children have to be able to master. Hence, passes in the examinations of these three subjects are mandatory for the children if they want to obtain the graduation certificates at the end of the junior secondary education.

Basically China and Taiwan have similar curricula but quite different from that in Hong Kong. The curricula in China and Taiwan consist of two components: national curriculum and district-based curriculum. The national curricula are examined by the central government while the district-based curricula are assessed by the tests in the classes. Both China and Taiwan give emphasis to Physical Education (PE) and Activities in their curricula. The results of them in the examination attribute to the success of being admitted to the higher level of study. Looking from this perspective, the examination contents of China and Taiwan are more balanced than that in Hong Kong. Strictly speaking, the curriculum in Hong Kong is very academic-oriented and is focused mainly on academic subjects.

China has political studies which are absent from the other three places. The political studies are the core subjects to be examined in China. If you fail in the subject, your admission to the higher level of study is doubtful.

We can conclude that governments' emphasises on the curricula can condition the subjects and contents to be tested publicly. If we look at the ways of curriculum development in these places, we can have the following findings:

1. China, Taiwan and Hong Kong are places with National Curriculum, so they have national unified examinations. The Central government designs and announces the teaching schemes and teaching curriculum. The basic examination subjects are based on the curriculum for senior secondary schools in these places. In China, the NEAC of the State Education Commission is responsible for the examinations. However, though the Central government designs the curricula for all schools in Hong Kong or Taiwan, examinations are based on the examination syllabuses published by the statutory examination bodies such as the Hong Kong Examination Authority (HKEA) in Hong Kong and the Entrance Examination Centre (EEC) in

Taiwan.

2. Macao does not have its own curriculum, and we find that Macao government does not constitute any public examination policies for the schools.

From the above, we can see that the subjects and contents to be tested depend very much on the provision of the curriculum and the ways of its development. Any reforms in the curriculum may change the examination practices.

Ideologies of leaders can condition the examination policies and practices

The leaders' beliefs about education always have some effects on examination policies and practices. The examination policies and practices change back-and-forth depending on the emphases and ideologies of the leaders. A dramatic instance of such back-and-forth shifting in emphasis has been observed in China over the past three decades. The issue at stake has been the red/expert conflict.

Between 1949 and the mid-1960s, Chinese officials occasionally altered the emphasis between the red (politically red citizens) and expert (vocational experts) aspect in both formal and informal education programs. Throughout most of the 1950s there was clearly a need to prepare skilled scientists and engineers to implement China's socialist modernization program, so the stress in the education system was on providing experts. However, concern over a decline in political eagerness led to the Great Leap Forward in 1958 and a consequent shift in the field of education to the 'red' component. Economic problems identified with the Great Leap led to a retrenchment, and in the 1960s the education system shifted to an emphasis on expertise. The code words of the early 1960s period were 'quality, expertise, and evaluation' (Hawkins, 1983, p.142).

Then suddenly the pendulum swung back to an extreme red position as the nation's top leader, Mao Zedong, introduced the Great Proletariat Cultural Revolution in 1966. His stated purpose was to root out the elements of anti-revolutionary revisionism which he claimed were uncontrolled in the schools and were endangering the achievement of his Marxist ideal of creating a classless society governed by peasants and workers. The university entrance examination system in China has undergone radical change since the Cultural Revolution. The competitive entrance examination was discontinued in recognition of Mao's belief that 'Education should connect with practice, intellectuals should link with workers and peasants' and that 'university students should be selected

from those that have some practical working experience' (Unger, 1982). Thus, the entrance examination policy changes to no examination policy in China in 1966. This resulted in the latter 1970s the social and economic wreckage produced by the red dominance during the Cultural Revolution and motivated government officials to stress the opposite goal, that of producing experts, particularly in science and technology.

It is true that the nation's leaders continued to affirm their commitment to the red portion of the dual educational aim by urging that 'ideological work of schools must be strengthened so as to build up students' confidence in socialism and foster in them the Communist spirit and morality' (Zhou, Cai & Liu, 1983, p.24). However, in practice it was obvious that the stress was no longer on political faithfulness but, instead, on producing experts. Elite key schools were founded, admission to advanced educational opportunities titles were restored, and curricula were comprised of both theoretical and practical studies. As demonstrated in the education provisions in China's national socio-economic development plan initiated in 1985, concern for expertise was clearly overshadowing fidelity to Maoist Marxism.

In the current drive to modernize the Chinese economy and the armed forces, the pendulum of Chinese higher education admission policy has once again swung to an extreme position. Ideological faith and socialist 'good workers' now count for little, nor is peasant origin any longer so helpful. Instead, admission depends on success in the examinations at the end of senior secondary schools. 'Expertness' is valued more highly than 'redness', at least for the time being. This policy of placing student ability above political orthodoxy as the major administration has chosen to run.

However, in the spring of 1989, massive public demonstrations, led by university students were aimed at convincing the government to permit more freedom of speech, exert greater control over rising prices, and reduce government corruption. The government responded with military force and returned to emphasizing the red factor, requiring students who participated in the demonstrations to attend political indoctrination classes and to pass the test before they could receive their diplomas. Its intention is to use examinations to control the thoughts of the pupils because as Sweeting (1990) points out that many Chinese government officials believe that educated people are trouble-makers. From the above, we can see that the beliefs of the leaders have significant effects on the development of the examination policies and practices.

Political system can constrain the examination policies and practices

Examination system is not only conditioned by the political system but also reflects some changes in the government's policies. It is not unusual for changes in emphasis on goals to assume a cyclical or alternating character in response to changes in political and socio-economic conditions of the society. In China, some concrete policy changes in senior secondary admission examination system reflect the demand for the political situation. Before 1958 China adopted an admission policy that all the peasants, soldiers and workers were recommended to study in schools. From 1958 to 1965 China emphasized classes policy and exercised strict admission policy which admitted students only based on marks obtained in the examination. In 1972 China again adopted the admission policy by recommendation. It also used the 'Three come, three go' policy which means that those workers who had been recommended by the factories to study would go back to work in the factories after graduation. Similar requirements were also held for the peasants and soldiers. After 1977 i.e. at the end of the Cultural Revolution, national unified examination was recovered, all students qualified to study in the universities needed to score above the minimum entry levels set down by the government (Hack, 1998).

In the 1980s, and especially since the announcement of the 1985 educational reforms, university selection has again become a key issue. Changes in the employment system for graduates have created momentum to look again at selection practices. This will be discussed later.

We can also find examples in Hong Kong. In the early stage of colonisation, the economic development of Hong Kong was not as prosperous as today; government wanted to control the public funding in education by limiting the number of school places. According to the White Paper (1965, pp.5-6), 15% of the primary school leavers were eligible for government assisted secondary school places. Apart from financial aspects, limiting the provision of school places was obviously the colonial policy. Government wanted to control the social mobility of the common people through education in order to achieve her colonial policy of 'elite Chinese ruling the Chinese'. Hence the selective function of the examination was clear and it became an important tool to select students to receive higher level of education.

By the middle of the 1970s, the very success of the Hong Kong's manufacturing revolution had led to the spectrum of protectionist trade policies being implemented by such important economic units as the United States and the European Economic Community. In 1978, Governor Sir David Trench announced that the *free and compulsory* education was extended up to the age of fifteen. This was not done in response to calls from educational radicals, instead, it was seen to be a way of disarming criticism from within the European Economic Community that Hong Kong's industry, particularly its textile industry, exploited child labour (Sweeting, 1990). To provide sufficient secondary school places, government even bought places from the private schools which were of poor quality. Conceptually no public examination would be needed if there were sufficient provision of secondary school places. However, most parents would make major sacrifices to afford their children a good education. The desire to send their children to those prestige schools was great. The spirit of examination was once again selection and allocation.

Modern Technologies can condition the examination policies and practices

With the invention and development of high computer technology, the development of more sophisticated scoring procedures for examination is possible. The relative ease of execution by computers, the potential for mass application on a reasonably economic basis makes multiple-choice questions become the main format of examination. Nowadays more and more multiple-choice questions are used in examinations for various subjects in Taiwan and Hong Kong.

Computerization has not yet been fully developed in China, and it has not yet moved to machine-scored examinations. But China has introduced substantial elements of multiple-choice and short-answer questions into what had previously been a traditional extended-answer type of examination. This gives rise to heavy burden on the costs of grading and administration given the large numbers it is presently dealing with. As the number of candidates increases in future years, the temptation to move to machine-scored tests with multiple-choice formats must grow even greater. At least one authority on examination policy in the World Bank has predicted that the time is not far off for China to use the multiple-choice questions widely in the examinations (Quoted in Cleverley, 1991).

The examinations in Taiwan and Hong Kong have always been criticized for recalling facts. If so, there is distinct danger that the changed format in the examinations in China will reinforce the already strong emphasis in Chinese schools on rote learning and the recall of 'facts'. We have to pay special attention to this when we develop a new mode of assessment.

Change in social structure can constrain the examination policies and practices

Examination system is one of the components of the social system. It, of course, is determined by the existence of the society. The change of the social structure has some deterministic functions on the development of the examination system.

1. Social stratification determines the formation of the examination policy

If education is believed to be set up by accompanying with the teaching and learning of people, its product is obviously towards the direction of the development of social stratification, no matter they are concerned with the upper level of the political organisation or the socio-economic organisation. The characteristics of the social stratification are due to the rationality and proficiency of the economic activities or other political activities. This demands that those who are involved in these activities possess some special knowledge, skills or have been received special training in some aspects. Stratification needs individual performance or results as a basic requirement to be selected.

The social structures of China, Taiwan, Hong Kong and Macao have been changing into stratification systems. Social movement from the more stable, closed lateral movement to the more flexible, open longitudinal locus is possible. It gradually suppresses the employment system based on the hierarchies, family and nepotism, and begins with knowledge, ability as the criteria for selection. Thus examination forms a powerful selective assessment tool to make the social stratification come true. People can take part in the examination no matter of what one's family, social status are, and can evaluate their abilities and standards by passing the examination. The successful candidates can be selected to fill up the key posts in the government or other organisations. It prevents the social status from the heritage of the family background.

To suit this social change, there comes the selection examination which becomes the main component of the examination system. In fact, selection examination signals the

beginning of the longitudinal movement of the social structure. It represents the progress and development of human society. This explains why national selection examinations are widely used in China, Taiwan and Hong Kong.

2. *Division of labour makes the examination system more complicated.*

The success of the Industrial Revolution promotes more changes for the structure of the society. As the industrial society is highly developed and jobs become continuously disintegrated, each job demands high standard of professionalism. Hence, division of labour becomes more and more precise, and jobs need more and more professionalism and technicism. This makes the division of duties of the lateral structure of the society become more and more intensive, hierarchies of the longitudinal structure become more and more precise.

The reform of the schooling system is necessary to suit the needs of the society for the standards of the workers. This explains the appearance of all kinds of primary, junior secondary schools, senior secondary schools and vocational schools and their linkage with universities and tertiary institutes in China, Taiwan, Hong Kong and Macao. Different types of schooling systems have been developed to cater for the development of the society. Following the longitudinal development of the schooling system, examination system is also towards the longitudinal development, forming different types of examination: admission, graduation, certification, and selection. The merge of the schooling and examination system forms a qualification system. This system is mainly to suit the society for demanding different standards of manpower and the needs for individual development.

3. *Social mobility of people accelerates the development of examination system*

From the democratic perspective, fair movement is all accepted by our society, forming the socialism of the modern society. The society has to protect its people to have the right to move freely. To make rational and effective manpower movement come true, qualification system becomes the must for the development of the modern society. Qualification system actually enables the society to nurture and to employ manpower separately. People are awarded qualifications according to their grades and professionals. This labelling effect becomes the most effective mechanism to employ, nurture and allow the manpower to move freely in the society. Individuals once obtain certain qualifications can have multiple movement in the respective areas and within

certain valid periods. The lateral development of the professional qualification system causes the lateral development of the examination system.

Using examination system to select individuals and to make the move is one of the fundamental systems that cannot be lacked of for the society. In our modern society, academic credentials are the qualifications for people to seek their jobs. Although Collins (1979, p.15) argues that education and productivity are not necessarily positively correlated, people believe that possession of academic qualifications guarantees the standards. Thus educational examination makes the academic examination and qualified certificate examination united together. Examination becomes the focus of competition. Examination is treated as a 'Goal' and a 'Step' for people entering into the society. It is also treated as the 'Admission Card' or 'Permitted Card' for people entering into the higher position in the social hierarchy.

Job opportunities of people have direct influences on the examination systems

Education can provide a means for everyone to climb up the social ladder by merit. Education thus becomes the essence of a meritocracy, and an essential means for upward mobility. The culmination of merit distinction always takes place at the end of a certain stage of education through examination. It is believed that examination is the most objective means to evaluate capabilities or merits. The performance in examination therefore becomes a credential of merit for the people concerned. This belief in meritocracy achieved by education, examination and educational credential is widely prevalent in China, Taiwan and Hong Kong.

The general educational qualifications granted by the educational system begin to play an increasing role in the control over access to occupations. As a result, the social definition of the purpose of education has changed, and thereby the motivation of students and the quality of learning. In the process, education is reduced to qualification earning. The phenomenon of 'schooling without education' thus occurs. People learn in schools not for self-fulfilment but merely as deficiency-motivated beings for credentials only (Dore, 1976, pp. 1-9).

Many people comment that Hong Kong is a credential-conscious society where educational credentials determine people's occupational status which may in turn

influence their social and economic status and access to political power. Hence, formal schooling in Hong Kong is significantly related to life chances. The university graduates in general earn three to four times more than the pre-university graduates. According to the pay-scale system of the civil service in Hong Kong, in 1984, for example, the starting point for the university graduates was Master Pay Scale 20 (about \$5600), whereas it was 14 (about \$4000) for candidates who had passed the matriculation examination, and 5 (about \$2250) for those who had passed the HKCEE.

Various restrictions and requirements of the labour employment system drive the people to think that if they want to change their positions in the society or to get a better paid job, the only way is to get a good examination result. This forces a large number of students to rush for the gate of the examination. As Dore and Collins argue, the emergence of the credentialism is a result of the emphasis on the selective function of education. Such emphasis is clear in post-Deng's period of China, Taiwan and Hong Kong, and is mainly reflected in their common reliance on the examination mechanism which takes place at different stages of education.

Prior to Deng's modernization policy, the reliance on selection examination in China was not very strong because its economic development was in a very primitive stage. The society needed a large number of workers. China adopted a job-assignment policy for students after they graduated from schools. This policy guaranteed the employment of students after graduation with normative salaries. The desire for higher education, in particular the university education was not strong, and students mainly focused on the graduation examinations instead.

Following the withdrawal of the job-assignment policy recently, students have to seek for employment after graduation. The opportunities for the students to be employed depend on the qualifications they possess. Academic credentials become the key factors to be considered for selection by the employers. Thus, examination becomes the sole selection tool for the purpose.

Taiwan, Hong Kong and Macao have different social labour systems which determine their own examination systems. The enterprises and government offices in Taiwan and Hong Kong normally employ different classes of university graduates for different grades, forming the pyramidal model for the manpower employment system. Famous

companies only employ prestige university graduates. In Hong Kong nearly all the Administrative Officers, the potential government senior officials, are from the graduates of HKU and CUHK. Taiwan has similar situations, most of the senior posts in the government offices are from the few prestigious universities, such as the Taipei University, Taiwan Normal University etc.

With the development of universal education, the labour employment systems in Taiwan and Hong Kong mainly recognize the university qualifications. Graduates from senior high/secondary schools, technical schools are recognized with low qualifications. This makes the non-university graduates feel that their employment chances and rewards (salaries) cannot be guaranteed. Entering into the university is the only way to secure a job with reasonable salaries. Thus, it is very tense for the students to take part in the selection examinations.

Table 5.5: Percent of responses from students/parents about stress on students

	China	Taiwan	Hong Kong	Macao
Students feel stress on examination	88%	95%	93.8%	75%
Parents/public feel stress in preparing their children for examinations	87.5%	90%	86%	55%

Source: Adapted from Table 2.5 & Table 2.6

The labour employment system in Macao is quite different from that in China, Taiwan and Hong Kong. Most of the people are employed in the Casinos, the main industry in Macao. High academic qualifications seem not necessary for the jobs in the Casinos. This explains why the education system and the examination system in Macao have not yet been well developed.

We can see that examination policies and practices can affect the structure of the society and the social lives of the people. However, the societal factors such as the labour employment system, division of labour etc. can enforce the existence of the examination system in the society.

Traditional Chinese culture can constrain the examination policies and practices

Traditional Chinese culture has some influences on the existence and development of

the examination. Chinese people have deep-rooted concept on the close relationship between study and officials, study and prestige. The following quotations are representing the above concept:

“ Golden house can be found in the books, and beautiful ladies can be found in the books, too.”

“ Although you suffer ten years studying, your fame may be known to everyone if you succeed.”

Chinese scholars obtained their successes mainly via the examination path. This forms a very deep-rooted concept on value. Lu Shun, a Chinese scholar, once said Chinese people had a ‘hereditary disease’ of examination. We can conclude that the existence and development of the Chinese examination system and the Chinese special concept on value are closely related.

Once a Chinese scholar has said, ‘ Culture has laziness. The older the culture is, the greater of the laziness will be.’ When we are going to reform our examination system, we are always influenced by the concept of examination value in the society. We cannot jump out of the traditional boundary. Cultural influence on the Chinese can best be illustrated with the comments in the interviews. During the interviews with the students and their parents in China, Taiwan, Hong Kong and Macao, I found that most of the parents wanted their children to study in the university, and most of the school students said that they would try hard to get into the universities (see Table 2.5 & Table 2.6).

About the value of examination in the Chinese societies, Chinese people still treat examination as a fair game. They all believe that ‘Everyone is equal in front of the scores obtained in the examination.’ This concept will become the chief accelerator or inhibitor in the examination reform. We cannot neglect or under-estimate the influence of the social value concept on examination system.

Debates by educational academics affect the examination policies and practices

Collins’ findings (1979) reveal that education and productivity are not necessarily positively correlated, and in some cases the better education can be less productive or counter-productive. This opens the debates about examinations, and these debates may greatly affect the examination policies and practices.

i. Controversial issue on examination-oriented educational system

Critics charge that the children who attend examination-oriented educational systems focus so narrowly on the task of passing the examination that they experience boredom and their minds fail to be stimulated. But most of the teachers and parents in China, Taiwan and Hong Kong suggested that children who studied in the examination-oriented education systems learned more than children in schools with more diffuse educational objectives. Moreover, children in such systems take up their studies with the extrinsic motivation of passing examinations, they seem more likely and eventually develop a genuine love of learning than do children in less demanding systems (Interviews in Beijing, Taipei and Hong Kong). Here are some of the comments commonly quoted by the interviewees.

‘... most our [Chinese] students can get good results in schools when they study abroad. To study hard for good results is our Chinese value!’

‘ The reason we [Chinese] work so hard and have a strong work ethic is largely related to our schooling. Chinese education places great demands on all children, and this competitiveness and work obligation stays with people all of their lives.’

Controversy over examination policies is usual in the contemporary world (Noah & Eckstein, 1990). It has been exemplified in China’s abandonment of secondary school and university entrance examinations during the Culture Revolution, and their reinstatement ten years ago. There are disputes over the form and purposes of HKCEE in Hong Kong. There are concerns expressed in Taiwan that whatever the benefits its examination might bring in the way of stimulating student and teacher efforts, they are being bought at the price of severe tension placed on young people and their families.

ii. Controversial issue on assessing an increasingly broad range of outcomes and personal qualities

Examinations have been rightly criticized for their stifling effect on the learning of the students. Some academics comment that the more traditionally organized the examination system and its contents are, the more the ‘socially well adjusted’ and the conformist will find it the ideal way to success. They suggest that a good examination must therefore leave ample opportunity for the children to demonstrate their own interests, their own creativity etc. However, others argue that it is questionable whether the situation of the examination and the scope of the action required in examinations

encouraged the manifestation of such qualities.

iii. *Controversial issue on giving teachers an enhanced role in assessment*

Some systems have considerably broadened the scope of the examination by including school-based assessment as part of a terminal examination. This has increased the involvement of teachers in the assessment process, though these kinds of assessment are accompanied by strict monitoring procedures. Hong Kong is seriously considering the possibility of using teachers' continuous assessments of students as part of the examination process. However, some teachers argue that difficulties will be encountered from pencil-and-paper test to school-based assessment because this paradigm shift will violate their culture. When there are significant differences between the two cultures in their teaching methods, educational traditions, social attitudes and teachers skills, it is quite difficult to make a compromise.

iv. *Controversial issue on the conceptions of knowledge*

Berlach and Berlach (1981) have characterized differences in the way knowledge is perceived. In the classic view, knowledge is content, given, and holistic. In the modern view, knowledge is process, problematic, and molecular. Examination of knowledge following the classic view is best carried out with essays, while the modern view is more amenable to short-open-ended or multiple-choice questions.

v. *Controversial issue on criterion-referencing and norm-referencing testing*

The traditional route to qualifications through examinations in China, Taiwan, Hong Kong and Macao has been based on predominantly norm-referenced examination systems. Thus examinations are designed to rank the performance of individual candidates and award a spread of grades. The grading system is based on assumptions about the spread of achievement conforming to the bell-curve of normal distribution (James, 1998, p.143). However, the grades obtained in the norm-referenced examination system are criticized for not representing the true abilities of the students. They only show the relative positions of the students in the group taking the examination. Educationists suggest the criterion-referenced examination systems in which anyone who fulfils the prescribed requirements specified in the criteria and meets the standards, will have their achievement recognised. They argue that criterion-referencing can provide information about the student's competence that is substantive, specific and highly reliable (Jessup, 1991). However, this argument has not been supported by evidence. Theoretically, criterion-referenced testing sounds good in assessing students'

achievement but practically it is difficult to specify an adequate criterion level of performance (Hashway, 1998). In testing, criterion-referenced interpretation means a large number of test items per task. A cut-off score is found for each test. Although the cut-off score may be determined by subject matter experts, the arbitrariness of the cut-off has come under attack (Ebel, 1970). Besides the somewhat arbitrary nature of the cut-off score, there is no theoretical or empirical base for the degree of proficiency reflected by a cut-off score being adequate for acquiring satisfactory proficiency in the skills that are to be subsequently learned (Hashway, 1998).

vi. Controversial issue on achieving a better match between learning aims and testing realities

Interviews with a sample of senior form-teachers in Hong Kong revealed the fact that most of them knew what objectives were being tested by the examinations and sought to emphasize these kinds of learning in their classes rather than to follow the aims recommended in the local curriculum guides. Educationists criticize that the educational achievement of the candidates parallels more closely the objectives tested by the examinations than the objectives given in the curriculum. They want to achieve a better match between learning aims and testing objectives.

Conclusion

From the above analysis we find that examination policies and practices cannot stand still and they are conditioned by many factors such as the education systems, social changes, the ideologies of the leaders and the debates of education academics. These explain why there are variations in examination systems in China, Taiwan, Hong Kong and Macao. Let's make some comparative reflections on examination systems in these four places.

1. The educational systems in the four places are similar in a number of ways. All have been expanded rapidly in recent years. This is partly due to population growth and partly due to a commitment in the societies to provide education both for economic and social reasons. At first, all places possess 'pyramidal' educational systems but some have developed to other types such as 'trapezoid' or 'bottle' depending on the speed of their social, political and economic development.

Given what I have said about the structure of the educational system, it is hardly

surprising that examinations play a crucial role in selecting the students to the decreasing number of places that are available as one proceeds through the system. Thus, admission of students from one level of study to the higher level is based solely on the performance in the examinations. However, from a comparison of trends in primary and secondary schools, we observe that probably within the stage considered as compulsory, there is decrease in emphasis on external examinations. This change in situations is obvious when the universal education has been implemented. No external examinations are held for students at the end of the primary schooling in China, Taiwan and Macao except Hong Kong. Hong Kong still uses Academic aptitude Test (AAT) and internal assessment to allocate pupils from primary to junior secondary places.

2. The education development in these four places is not at the same pace because the levels of development for their social and economic structures are different. As such, the demands for skilful workers in these places are different. Hence, external examinations play a crucial part in selecting suitable candidates for higher education. The admission of students to universities depends on the results of the national unified entrance examinations and their relative positions in the list. Although Macao does not have any national unified examinations, the University of Macao administers its own entrance examination for the students.

3. Examination systems are more easily developed in programs with a clearly specified curriculum. Most educational systems with rational curriculum, such as China, Taiwan and Hong Kong, have developed more form of acceptable national examinations for key transition points, while in the place with no curriculum, such as Macao, no clear examination policy is found.

4. Examination systems have to be judged not only on technical criteria but also in terms of their social, political and cultural comparability. We have outlined some of the characteristics of the examination policies and practices found in these four places. The policies and practices have evolved over the course of development of these places to the point where they have highly distinctive styles. Each reflects special concerns of the society - for encouraging diligent effort in the case of Taiwan and Hong Kong, for insuring socialism in China, for insuring intellectual breadth in the case of China, Taiwan and Hong Kong, and for insuring colonialism in Hong Kong and Macao. In fact, no commonly accepted examination system seems to emerge in these four places at this

moment. However, this situation may change when a more global economy develops in these places. More and more skilful workers are required for the change. To facilitate governments or industrialists in these places to recruit or admit suitable candidates to employment or higher education, comparable credentials are required. This may make the examination systems in these places converge. In addition to this, the return of the sovereignties of Hong Kong and Macao to China will also increase the pace for convergence.

5. The examination system in Hong Kong is heavily influenced by the traditional British examination procedures, while Taiwan has some degrees of American influence. Although China claims that it has its unique examination system, some traces of British and American influences are found in the system (Cleverley, 1991). Their examinations are formal, terminal, subject-based and external to the school. Most of the examinations still emphasise on written work rather than on the assessment of practical, oral or course work. However, there is a clear trend towards a balance between internal and external control of examinations, with the accompanying trend towards a balance between formal examinations and school records based on daily work. Moreover, the format of examination has also undergone change from essay-type written examinations to be replaced in part or in whole in some places by multiple-choice tests due to computerization. This greatly facilitates the use of multiple-choice tests in the examination systems in these places.

Given the importance of examinations, it is not surprising to find strong government control of the examination system. Analysis of the examination policies may reveal that the two societies differ significantly in the kinds of people their leaders hope to produce. The degree of control, however, varies somewhat from place to place. In China, the central government administers the system, while in Taiwan and Hong Kong, governments have devolved authorities to the examination bodies such as the HKEA or the EEC. In Macao, government does not administer any public examinations for its students. Strictly speaking, Macao government has no control on any examinations. However, this has some drawback because government does not provide a common yardstick for the students or schools against which to compare the performance of different students or schools in Macao.

Chapter 6

Modes of tests used in the public examinations in China, Taiwan, Hong Kong and Macao

In this chapter I discuss the different types of tests used in the public examinations in China, Taiwan, Hong Kong and Macao in order to study the validities of their examination systems. An examination system is said to be valid only if it can measure what it intends to measure. In this way, we have to understand what aspects of education should an examination system intend to measure. As we know, a country usually sets its own aims of education for its students. An examination system is often used to assess the students' educational achievements based on these aims. To find the validities of the examination systems in China, Taiwan, Hong Kong and Macao, we must have some understanding about the aims of education in these places.

It is found that the aims of education in China, Taiwan, Hong Kong and Macao are focused mainly on student's attainment of all-round development in the domains of *ethics, intellect, physique, social skills and aesthetics* (Education Commission, 2000). They call them the 'Five Virtues'. To sum up, students will be expected to be able to

1. recognize their roles and responsibilities as citizenship, and show concern for their well-being;
2. possess a breadth and foundation of knowledge; and
3. lead a healthy lifestyle and develop an interest in and appreciation of aesthetic and physical activities (Education Law of PRC.,1995; Education Commission, 2000).

Although the five virtues should be of equal importance in the all-round development of children, they are treated differently in different places. This can be seen clearly by looking at the methods of assessment used in their public examinations. By comparing the types of tests used in their examination systems, we can easily get some insights on how different governments will place different weighting on different aspects of the aims of education in their schooling systems. This somehow reflects the political and ideological differences of the governments in these places and this in turn reflects the validities of their examination systems.

Modes of tests used in China, Taiwan and Hong Kong

Let's compare the types of tests used for the public examinations for the senior secondary education in China, Taiwan and Hong Kong with reference to those in UK(England). I deliberately omit Macao from the comparison table because Macao does not have its own examination system.

Table 6.1: Comparison of modes of tests in the public examinations

	China	Taiwan	Hong Kong	UK (England)
Modes of tests used in the public examinations (as in 1997)	SMSGGE & NUCEE	NUCAE	HKCEE & HKALE	GCSE & GCE(AL)
Paper-and-pencil Test	✓	✓	✓	✓
◇ Multiple Choice (MC)	✓	✓	✓	✓
◇ Short Answer	✓	✓	✓	✓
◇ Long Answer	✓	✓	✓	✓
Oral test	✓	✓	✓	✓
Physical fitness test	✓	✓		
Health record	✓	✓		
Teacher Assessment	✓	✓	✓	✓
Project work	✓			✓
Moral test	✓	✓		
Pupil's Record Card	✓	✓	✓	
Record of Achievements				✓

From the comparison table, we have the following findings:

1. We can see that China has the most variety of types of tests for its public examination while Hong Kong has the least. From the previous chapters, we know that universities admit their students based on the results of different types of testing. In China, though students are admitted to higher education based on the NUCEE results, students have to obtain the satisfactory results in the academic, physical and moral tests in the SMSGGE. They also have to get a good health record. These show that the government of China tries to make use of the examination-driven power to maintain a balanced education for the students. Thus, the aims of education can broadly be assessed in China. However, the requirement for the satisfactory results in the physical and moral tests will prevent some students, especially the disabled ones obtaining

higher education. Although Chinese government has made considerable efforts such as the promulgation of the 'Regulations on the Education of the Disabled' in 1994 (State Education Commission, 1997) to help them, some schools still choose the 'best' students to compete for the limited places in the higher education (Tsui, 1995). In Taiwan, similar types of test results are required, but Hong Kong does not. Hong Kong has fewer modes of tests in the HKCEE that mainly consists of paper-and-pencil test and oral test for the English proficiency. Only a small portion of teacher assessment for the practical work of chemistry is taken into account in the HKALE. This shows that academic results obtained from the paper-and-pencil tests are paramount important in the lives of children in Hong Kong. This reflects the high-stake of the written examination in Hong Kong. Most of the educators in the place remark that Hong Kong has reliable public examinations but they are not valid, in the sense that examinations are not testing what they intend to test. The students are said to be 'high marks low abilities' (Economic Journal, 12.6.2000). This reflects the fact that Hong Kong emphasized only on the academic achievements of students. The table below shows the responses from teachers and public when interviewed.

Table 6.2: Percent of responses from teachers and parents about students and education system in Hong Kong

Responses	No. of teachers (%)	No. of public (%)
HK students are 'high marks low abilities'	47.5%	81%
HK education system emphasizes too much on academic achievements	83.3%	86%

Source: Adapted from Table 2.4 & Table 2.6.

They remarked that Hong Kong needs diversity as well as conformity, each student's special talent and achievement should be taken into account in the certification and selection processes.

Emphasizing the academic results brings another backwash effect for education. Students spend a lot of their time in studying subject matters for the examinations without sacrificing any time for physical fitness and moral training. This perhaps

explains why Hong Kong has the highest percentage (64%) of secondary school children wearing glasses as compared with those in China (39%), Singapore (49%) and Japan (55%) (Ming Pao, 4.4.2001). To make the situation even worse, more and more difficult testing items are included in the examination papers so as to discriminate the students more easily by the academic results obtained by the students in the examinations. Some schools even prepare their students by giving them a large volume of reading materials which are out of testing syllabuses. In this regard, some of the materials (say History) studied by the students for the examinations become unused if they choose Science for their future studies. However, students may gain in-depth knowledge about the subject matters if they continue their studies in this subject.

2. China, Taiwan and Hong Kong have some kinds of national unified examinations for their senior secondary students. Students have to pass these examinations before they can enter into higher education. From the comparison table, the national public examinations mainly consist of the paper-and-pencil tests, oral tests and Teacher Assessment in China, Taiwan, Hong Kong and UK. However, the paper-and-pencil tests are the dominant components in the systems. The scores of the paper-and-pencil tests contribute largely to the final results of the subjects as compared with those in UK. Their dominance is further enhanced in these three places for their high positions in the international competitions such as the TIMSS, the Mathematics Olympics etc. in which the paper-and-pencil tests are used. The success in the international competitions reinforces the people in these places to think that paper-and-pencil tests are the best way to assess students' academic abilities. They deeply believe that children in these places are more capable in answering examination questions and they can take up their studies with the extrinsic motivation of passing examinations. This implicitly and explicitly creates a facilitating force to drive the teachers and students to work hard for the examinations. Thus, China, Taiwan and Hong Kong are said to have an examination-oriented system. This echoes to my findings in the previous chapters that the people in these places deeply believe that children who study in examination-oriented systems 'learn' more than children in schools with more diffuse examination systems. I put a quotation mark on 'learn' here because I am doubtful with the completeness of the paper-and-pencil tests to measure students' abilities. Let's find them out later.

Although many academics are not satisfied with the paper-and-pencil tests, they are widely used in the public examinations in China, Taiwan and Hong Kong. Hong Kong provides a good case study in this respect. In 1978 the Secondary School Entrance Examination was abolished and Academic Aptitude Test was used instead. Almost immediately, there came a general complaint from primary school teachers that pupils would not 'work' because the examination had been removed. Presumably, too, teachers had become so used to being praised and blamed on the results of an examination that they could not teach properly without the examination incentive (Board of Education, 1997).

The heavy reliance on paper-and-pencil tests to assess students' academic abilities creates a lot of teaching and learning problems. As the paper-and-pencil tests can only test those testable contents in the syllabus, the tests give some directions to the teachers and students. The syllabuses, mere catalogues of topics, are issued by the examination authority and central authorities. These are adhered to strictly by the average school when progress in the classroom is measured by the number of topics covered. Nearly all the teachers in the interviews opined that interpretation of the syllabus is carried out chiefly by reference to past examination papers which, however, not only sample a very limited area of the curriculum but also tend to carry questions similar in type and content year after year. Even when the precise examination questions are not known by the teachers, the format for the paper-and-pencil tests is generally standardized. Thus it is not uncommon for schools to give their students considerable practices in answering questions that are framed in the format of the test rather than in more natural contexts. Thus, the learning is artificial and designed to do well on examinations rather than in challenging students how to deduce meaning from the contexts. In Hong Kong where HKCEE and HKALE are still external, the high sale annually of the 'Ten Year Series' booklets points to the untiring efforts of students and teachers to divine the mind of the examiner. Very similar situations are found in China and Taiwan. Large volumes of supplementary exercises and booklets of past examination papers are ready for sale in the bookshops. Teaching and learning on such a basis sets a premium on a happy combination of guesswork and memorization. Moreover, as the paper-and-pencil tests

demand facts memory, teachers usually consider certain desirable activities such as note-giving, writing out sample answers to typical questions extracted from past examination papers, intensive practice at manipulative skills in subjects with quantitative content, and so on. The students in turn come to expect an intensely directed chalk-talk, note-rote, and grill-drill program. Teachers have lost out on the meaning of their professional task. However, these can be changed if the tests are going to assess students' higher order abilities. In fact, paper-and-pencil tests can measure complex learning outcomes if they are well constructed (Gronlund, 1998, p.110). This will be discussed later. Furthermore, there are some good reasons for using paper-and-pencil tests in the examinations because they can be administered more cost-effectively for a large number of candidates. They are more reliable and the results can be comparable among candidates between years longitudinally.

3. Multiple-choice (MC) questions are one of the most important components in the paper-and-pencil tests in China, Taiwan and Hong Kong. Taiwan and Hong Kong have a long history in using machine-marked multiple-choice questions in their public examinations, but China does not. China has its machine-marked MC questions within these 10 years when the computer system has been fully developed. The rapid change of examination format to machine-scorable tests is desirable in China because of the increasing number of candidates and increasing number of curriculum offers. It also seeks to ensure greater objectivity and cost effectiveness in testing. Can MC questions replace all other kinds of testing in the examinations? The answer is definitely not. It is found that usually 20-30% of the total marks for a subject would be MC in China, Taiwan and Hong Kong. They use separate papers for MC and conventional questions in their public examinations. However, many GCSE subject examinations include MC questions as part only of their assessment scheme. Only a maximum of 10-15% of the total marks of the assessment scheme will be MC.

There are a lot of debates on the use of MC questions in the examinations. As mentioned before, MC questions are easy to administer and score, and the results can be expressed in numbers that are easily recorded, compared, and reported to others. In this period of declining school resources and overcrowded classrooms, MC testing continues

to offer impartially and an efficient use of teachers' time. With proper effort, MC tests can be constructed to be an effective and efficient assessment tool, like other short performance tasks. They can be designed to be more authentic than traditional test items in term of the problem they present and more challenging in terms of the thinking required to determine the correct response (Hart, 1994). MC questions can in fact be designed to assess many higher levels of cognitive domain (Killoran, 1992). However, MC testing is a time-constrained assessment, test items tend to be low in the complexity of the problem presented and in the nature of the expected responses. Although items can be designed to measure understanding and thinking skills, they typically present a single, limited problem and require choice of the correct or best answer. There are at least two reasons for dissatisfaction of MC test. First, there is broad agreement that in many MC tests, significant performance advantages accrue to individuals who have acquired so-called test-taking skills. This induces a fundamental invalidity in scores of many students. Second is the tendency for test constructors to allocate most of the test items and response time to tasks that draw on recall and recognition than on reflective and multi-stage cognitive processing. The reasons for this allocation are two-fold:

- i. Complex tasks are more difficult to construct; and
- ii. The scoring constraints imposed by MC responses limit the amount of information extracted from the item responses.

4. Oral tests are commonly used in all places. However, the oral test used in UK is different from that in China, Taiwan and Hong Kong where Examination Authorities use oral to test their students' English proficiency only. The oral test score is only a small portion of the total scores for the English subject. Oral assessment of students forms part of external assessment in UK where appropriate. Clearly subjects involving performance or exhibition of some sort need oral test. However, it is also used where a large part (say 50%) of the external assessment involves a project which candidates may have pursued largely on their own. This tends to occur only at the advanced levels. Oral papers are only used in GCSE Modern Language examination schemes. They form a substantial part of the final mark totals - up to 30% (Gipps, et al., 1986).

5. Broadly speaking, China and Taiwan have more comprehensive examination

policies and practices than Hong Kong. They adopt different modes of tests for their children. Besides academic results for admission purpose, they also focus on some other aspects of education such as moral, physical fitness, aesthetics and social activities. They keep tracks of the children's all-round development by using simple tests conducted by teachers in individual schools. In this regard, they have already practised the internal assessments on students by teachers in schools. Although the assessment of non-academic subjects such as moral, aesthetics etc. is subjective because the results depend very much on teachers' professional judgment, it at least makes the students and the parents feel the importance of various aspects of education other than the academic one.

6. UK does not have any tests for moral, physical fitness, aesthetics and social activities but it has the Record of Achievement. It is used to complement certificate results in selection procedures. This would address the growing call for a wider range of achievements and skills to be recorded beyond those currently certified in the public examinations. Such information can include consideration of personal and social aspects, individual effort and progress made, and work-related competencies such as working with others, problem solving and IT competence. Theoretically, the Record of Achievement carries the same functions as the tests for moral, social skills etc. adopted in China. Its introduction in the selection procedures is good in the sense that it will not cause any backwash effect as that created by a test. The record is prepared by the student himself/herself and the form-teacher on what he/she can do. Basically the Record of Achievement is some kind of self-evaluation by the students themselves with teachers' positive comments. The damaging effect to the children by the Record of Achievement is surely less than that by a test.

Establishing the way forward

We can see that examinations can direct the efforts of many students and teachers toward learning and instruction activities which they believe are most relevant to what they think the examinations will call for. The more traditionally organized the

examination system and its contents are, the more the 'socially well adjusted' and the conformist will find it the ideal way to success. In many cases, this may focus the attention on goals different from those purportedly emphasized by the school and the society, and in some cases, this results in coaching rather than long-term systematic instruction. As such, students usually obtain high marks in the examinations, but evidence reveals that they are not so capable as the examination results shown. The public seriously criticizes the systems can only produce "high marks low abilities" students in these four places. They are asking for a good examination which must leave ample opportunity for the student to demonstrate his/her own interests, own creativity. This resonates with the comments and expectations made by the businessmen (Economic Journal, 20.8. 2000):

“ In today's severely competitive business environment, companies are in need of multi-talented graduates who can display versatile skills in different areas. The public examinations should therefore incorporate those elements in the assessment of students, so as to better equip them to meet the requirements of employment. In addition, the method of assessment should also lay more emphasis on developing students' independent thinking and creativity, instead of requiring them to memorise mere facts.”

Reflecting this pressing demand, the review for a change of the examination systems has thus come to a pivotal time for the governments of these four places. It is true from the above comparison that most public examinations rely on pencil-and-paper tests to assess students' academic achievement. As this mode of assessment does not fully reflect students' learning abilities in various aspects holistically, it cannot meet the expectation of the public for a clear picture of students' actual learning abilities. Moreover, it is also questionable whether the situation of the examination and the scope of the action required in examinations encouraged the manifestation of such learning qualities. Resnick and Resnick (1992) point out that assessment must be so designed that when teachers do the natural thing – that is, prepare the students to perform well – they will exercise the kinds of abilities and develop the kinds of skills that are the real goals of education (p.59). Black (1998) also points out that the examination measures too narrow an aspect of the whole and will not be of any significance (i.e. an invalid test) (p. 48). Modes of examinations have to be modified so that students' high order

thinking skills, creativity and problem solving skills can be assessed. To achieve these, a multi-dimensional measuring instrument that consists of different modes of assessment should be used so that ample opportunities for creativity to emerge can be observed. This is an 'ideal approach' to quality identification (Kirschenbaum, 1998, p.25). I will discuss this instrument in full detail later.

The Hong Kong Education Commission Report No. 7 (ECR7) echoes with the demand for the change of the modes of examination in September 1997 (EC, 1997). It recommends the Government, together with agencies such as the HKEA:

“... to examine the feasibility of and encourage public acceptance of considering students' school-based assessment alongside their public examination results so that their academic standard will not be determined by a single examination.” (Section 7.16, p.45)

However, as Fitz-Gibbon (1996, p.74) points out that there are many problems surrounding internal assessments such as the unavoidable bias, the danger of destructive labelling, and corruptibility etc.

The world is changing rapidly. It is necessary to have a clear message to teachers, employers and the community at large about skills, attributes and forms of knowledge that are most appropriate in students if these modern Chinese cities are to continue to prosper. Obviously the present examination process cannot tell the stakeholders the multi-dimensional skills of students. A change in the examination policies and practice inevitably occurred in these four places.

However, we must bear in mind that albeit public examinations have some backwash effects on students, teachers and public, I am sure that public examinations cannot be removed from the education system. Even if greater emphasis is to be placed in educational policy on the education of all children, it is unlikely that the selective functions of examinations, even at a relatively early stage in the educational systems of developing countries, can be abandoned. If there has to be selection, it has been argued that examinations are a more equitable way of doing the job than other procedures that

have been tried (Heyneman, 1987). The best way is to keep the examinations in the education system but to change their negative effects to positive ones. This can be done by devising different modes of assessment for the examination system. However, we all understand that we need favourable conditions if we want to make any successful changes in an established system. Are there any favourable conditions available for us to take a great step to change our examination system?

Favourable factors for the change in modes of examination

Although examinations have their long history for many years, the modes of examination have been changed from time to time. This may be due to the conceptions of the knowledge that schools should impart to students. This becomes important determinants of the style of examination systems. Berlach and Berlach (1981) have characterized differences in the way knowledge is perceived. In the classical view, knowledge is content, given, and holistic. In the modern view, knowledge is molecular, and in the post-modern view, knowledge is process and problematic. Evaluation following the classical view is best carried out with essays, while the modern view is more amenable to short-open-ended or multiple-choice questions and the post-modern view is more emphasized on authentic assessment that permit students to demonstrate what they know, understand and can do.

Although each place may have its own unique examination policy and practices, some changes in societies and in their education systems may have produced demands on changing their ways of assessment that may be shared among each other. These changes in assessment must be crucial to the effectiveness of student learning in schools and to the benefits of the society as a whole. This philosophical consensus drives the governments of the four places to accept similar shift in the ways of assessing their students. Gipps (1994) has identified a 'paradigm shift' in assessment in which there has been

'... a move from testing and examinations-as-hurdle model (where you make the examination as difficult as possible and give the candidate little guidance, the proof of quality being in the numbers that fail) to an assessment model where we all try to give all candidates a real opportunity to show what they know, understand and can do (by giving more guidance,

by sharing criteria with the student, and making the tasks match real life or classroom tasks).’

The following favourable factors for the change in modes of examinations have been found in China, Taiwan, Hong Kong and Macao..

A. New concept of education for 21st century

In the previous chapters the findings showed that the concrete policies of the examination system not only reflect some concrete policies of the political system, but also reflect some policies of the social development. China, Taiwan, Hong Kong and even Macao have rapid economic growth in the post-modern period. Their social structures, industrial structures are continuously changing. Under these circumstances, all-life education becomes the core of the educational systems. It is time for the governments to re-study the aims of education for the 21st century in the four places. Although the five virtues are still the main elements of the aims of education, their focus has been changed. They emphasise that every person is able to attain all-round development according to his/her own attributes so that he/she is capable of life-long learning; critical and exploratory thinking, innovating and adapting to change; filled with self-confidence and a team spirit; willing to put forward continuing effort for the prosperity, progress, freedom and democracy of their society, and contribute to the future well-being of the nation and the world at large (Hack, 1998; Cook, 1996; Education Commission, 2000). Nowadays a large volume of learning materials is not required to memorise because all these pieces of information can be obtained easily in the Internet. More important should be placed on the ways of understanding and using them. Hence the modes of examination have to be changed accordingly in order to cope with the life-long education of the students.

Although people have the new concept on education, they still believe that students should acquire sufficient basic knowledge in schools. The argument is that the development of critical thinking skills, problem solving skills and some other higher order skills depends very much on the sound foundation of basic knowledge acquired. They deeply believe that “empty vessel makes no sound.” It is very important for students to acquire a basic knowledge foundation for whole-person development and for

studies at higher levels. This indicates clearly that testing of subject knowledge in examinations is still very important in the contemporary society. This supports Baer's argument that sufficient knowledge in a domain has to be gained before it can be acted upon creatively (Baer, 1993).

B. Change functions of examination in the contemporary society

In contemporary education, examinations play a different role. They can be applied to evaluation of teaching methods, of curriculum, and of learning materials. To make these feasible, contemporary examinations have to use a wide variety of forms for the purpose.

Examinations for selection are unavoidable in China and Macao because they have limited resources for education. But, examinations for selection are still found in Taiwan and Hong Kong albeit they have sufficient resources for education. Selection mainly comes from the keen competition of students for the high-paid jobs in the labour market after their graduation. Finding well paid jobs in the market is the hidden agenda for most of the students and parents. Entering into the prestige universities can guarantee good lives (Smith, 1997). Examination is always considered to be a fair selection instrument by the public for the purpose. However, is that all for examination? Besides selection, examination can enhance the quality of teaching and effectiveness of student learning. As long as selection remains a function in the education system, there should be an equal balance between the use of assessment for selection and assessment for helping students learn at the school level. As different modes of assessment serve different purposes, no one form of assessment should take over the others. As a result, different types of tests should be introduced.

C. Assumptions about knowing and learning

Traditional empiricist perspectives associated with behaviourism characterize knowledge as numerous discrete behavioural associations that represent an objective external reality. Learning is therefore viewed as building and strengthening those associations. This perspective is inherently reductionist (assuming that complex behaviour or concepts can and should be broken down into smaller behaviour or

concepts) and additive (assuming these smaller components can be assembled into an authentic representation of the more complex entity; Case, 1996; Greeno, Collins & Resnick, 1996). These assumptions are at the core of traditional assessment practices epitomized by standardized multiple-choice tests. Much of the tension about assessment practices follows from the challenges to these assumptions from subsequent constructivist perspectives.

The model of instruction suggested by recent research on learning and cognition focuses on the learner as an active participant in the construction of knowledge and understanding rather than the mere recipient of facts and procedural rules. As Resnick and Resnick (1992) have noted 'Facts acquired without structure and rationale disappear quickly' (p.40). Therefore, effective learning requires the active involvement in thinking. Concepts and knowledge should be organized to be mastered, and they must be used generatively – that is, they have to be called upon over and over again as ways to link, interpret, and explain new information. Education requires an intimate linking of thinking processes with important knowledge content (Resnick and Resnick, 1992, p.41).

This constructivist conception of learning changes the role of the teacher from a transmitter of knowledge to a facilitator of learning. It suggests the need to engage students in the process of thinking about and trying to make sense of new information in terms of current understanding, in the organization and reorganization of knowledge, and in self-evaluation.

The view of learning and instruction together with the belief that assessments influence both the substance and the form of instruction, lead to the following expectations:

1. Assessment tasks should involve activities that are valued in their own right,
2. Assessment activities should contribute to instructional improvement by providing instructional targets that are consistent with, or better yet, indistinguishable from good instruction activities, and
3. Assessment should lead to improved learning by engaging students in meaningful activities that are intrinsically motivating.

D. Assumptions About Transfer and Assessment

A critical aspect of any interpretation of learning is whether it demonstrates transfer of knowledge from the learning situation which represents a particular environment. In the typical absence of a known transfer situation (such as employment setting or a subsequent course), the actual transfer situation is unknown and the assessments themselves are the transfer situation. Thus, the consequential validity of one's interpretation of student proficiency and the effectiveness of a learning environment is largely contingent on the appropriateness of the assessments.

Conventional views of transfer and assessment summarize empiricist assumptions about knowing and learning. When knowing is viewed as having associations, learning in a transfer environment depends on how many and which kinds of associations are acquired in the learning environment. Traditional assessment approaches test whether or not an individual possesses the associations that represent proficiency. Given the assumption that higher order knowledge can be decomposed into elements, it is reasonable to assess those elements in an abstract, decontextualized manner. Hence, multiple-choice tests that directly examine the associations that exist in learners' minds are ideal (and remarkably efficient) tests of transferable knowledge.

In contrast, rationalist assumptions about knowing and learning view transfer in terms of the abstract mental representations or schemas that designate relations that, in turn, collectively define a higher order understanding that is invariant across situations. Thus, the appropriate transfer environment presents learners with new problems that require them to apply the higher order knowledge structures that can be constructed in the learning environment. This focus on higher order reasoning structures is opposing to the assumptions underlying empiricist views of transfer. Rather than analysing transfer in terms of many small associations, transfer is analysed in terms of the higher order reasoning structures that are presumably constructed in the learning environment, relative to the reasoning structures that needed to be constructed to solve problems in the transfer environment. As such, assessment in the context may be preferable.

E. New Technologies

Recently computers have been widely used for educational testing activities such as processing answer sheets, performing statistical analyses of test and item scores, or printing score reports in China, Taiwan and Hong Kong. It is envisaged that new developments in technology will provide low-cost, high-quality computer technologies in these places in the coming years. The availability of high-tech computers in the hands of nearly any school system or individual educator will facilitate changes in the examination systems.

It is noted that recent computer applications involve a shift to a completely new testing technology in UK, USA and Australia. These applications use computers not only for their high speed but also for such features as interactivity, immediate access to mass storage of data, graphics, as well as power to control multimedia environments. Some of these features can be used in improving our test qualities.

Use of graphics in new item and response formats

For educational testing, the availability of new graphic tools has created the opportunity to make tests less dependent on the use of language. This dependence of test items on verbal abilities has been known to be a factor confounding the test scores. Today items can be raised in a graphical way, and new testing formats are possible.

Measurement of response time

It has been known for a long time that information about the examinees' abilities can be found in responses to test items and also in the time needed to produce these responses. In the computer-based testing, response time can be recorded automatically.

Use of multiple media

One of the latest developments in computer technology is the use of the power of computers to integrate and control visual media. Since multiple media tests can be used to simulate complete work environments, involving virtual reality, they will no doubt play a future role in certification examinations. The certification examination for Microsoft Certified System Engineer is one of the examples.

Microsoft Certified System Engineer is one of the examples.

Test-item banking

In test-item banking, computerized systems are used to store pools of test items for various content domains, along with item classifications and statistical information about the properties of the items. A review of item-banking technology is given in van der Linden (1986).

Computerized adaptive testing

In this application, tests are assembled from an item bank and the actual assembly is to adapt the component of the test to the ability level of the individual examinees. A feasible way of doing so is to select the items in the test such that each next item matches the ability estimates inferred from the responses to the previous items. A recent review of the technology is given in Wainer (1990).

With the rapid development in modern computer technologies, changes in the educational testing can be facilitated in China, Taiwan, Hong Kong and Macao.

F. Globalisation

Globalisation has caused more free movement of capital, goods and people between countries, coupled with changes in openness of labour markets. This brings about changes in society, environment, culture, politics, technology and moral values. This in turn increases the degree of competing opportunities among the people. China, Taiwan and Hong Kong, as the leading Asian cities, have also been transformed from an industrial society to a knowledge-based society. This has increased the demand for new kinds of knowledge in global communities. Governments are searching for new skills and workplace competencies needed in the knowledge-based economy. Communication skills, problem solving skills, analytical skills, the ability to work in teams, leadership capabilities, IT skills, the ability to learn and among others, are becoming important and complementary to basic core or foundation skills. Therefore, our students need to acquire the techniques of 'learning to learn' so that they can continuously update their knowledge to face a future of opportunities and challenges.

In this regard, the schools are to equip students with different learning abilities to develop their potential, and encourage them to sustain life-long learning to meet future challenge. To do these, the prescriptive 'teaching/examination syllabus' which is made up of learning experiences (contents, processes, social interaction etc.) should be opened up to all students to help them learn more and better. However, the present examinations in these four places can only provide a basis for measuring knowledge, and they cannot measure the students' learning skills which must be assessed in an authentic way.

Suggestions for a new mode of assessment

Most of the Chinese people in these four places consider examination a valuable tool in assuring quality in education, but they also think that examination should be modified to cope with changes in the economic and social development of the places (section 7.13, ECR7). This is because they find that public examinations should be capable of assessing and reporting a wide variety of individual achievements within the scope of the curriculum. However, the existing examinations do not always enable the full range of syllabus objectives to be assessed and reported. This gives green light for developing a new model of examination in these places.

We know that the greatest assets of the four places are the skills, the industry and the creativity of their people, and the future of these places depends on the students of today. Their education should be such as to encourage growth and development across the whole spectrum of the traditional Chinese virtues. However, at present the public examination system only fulfils the discrimination between the abilities of the high achievers so as to facilitate the task of higher education selectors, but not providing appropriate recognition of the achievement of students who perform less well. Thus, the new model of examination must be catered for this.

Insofar as any places can achieve consensus in their aims for education, it would seem important that they should attempt to reach agreement and establish priorities in values pertaining to education. For example, is the function of the educational system primarily

to select a small cohort of students for higher levels of education, or is it to provide basic skills for the total population, or is it to do both? If it is to do both, what kinds of balance should be struck between different functions? The rhetoric in most places would suggest that the provision of basic skills for the total population is most important; present examination practice suggests that selection is most important. Is it possible to devise a new model of examination that can achieve both selection and certification for the basic knowledge/ skills acquired by the students? Let's explore the possibilities.

Nature of a new model

The new model of examination should be designed to help create a better future both for students and for the four places. It should reflect all of the following main aims of learning:

1. Knowledge and understanding over a broad range of topics
2. Ability to learn new topics
3. Skills in handling laboratory equipment and in data analysis
4. Ability to take initiative in practical investigation
5. Ability to research a new topic and synthesize the findings.

To achieve these, the new model requires all students to be assessed in ways that permit them to demonstrate what they know, understand and can do. Different ways of assessment have to be used, which may be very different from those used in the past.

Openness of testing

Bearing in mind the acquisition of socially approved personal habits and critical knowledge still requires study, the more the better. Under these circumstances, it makes sense to publicize the goals and general structure of tests and to encourage children to study for them. Thus, students should fully understand what will be asked in the examination. This measurement-driven-learning approach forces students to learn all the basic knowledge and skills required in the examination syllabus. This guarantees the content and the construct validities of the tests.

Internal and external control of assessment

The new mode of assessment obviously shows a trend towards a balance between

internal and external control of examinations, with the accompanying trend towards a balance between formal examinations and school assessment records based on daily work. It must be pointed out that school-based assessment can help diagnose the learning of students, but, as Fitz-Gibbon (1996) points out care must be taken not to use the internal assessment results for high-stake determination.

Fairness of the assessment

Although Gipps and Murphy (1994) remark that there is no such thing as a fair test, by paying attention to what we know about factors in assessment and their administration and scoring, we can begin to work towards assessments that are more fair to all groups likely to be taking them and this is particularly important for assessment used for summative and accountability purpose. The new mode of assessment comprises a variety of types of assessment, questions and procedures and so on. This reduces the threat of bias due to question types, and gives each candidate a number of different occasions and a number of different types of challenge.

Practicability of the new mode

The new mode of assessment is pragmatic in these four places only if the following are closely observed:

1. Cost of the assessment
2. Easy administration of assessment
3. Enhancement of learning and teaching
4. Wide coverage of the learning objectives
5. Validity of the assessment
6. Reliability of the assessment
7. Fair tool for certification and selection purposes
8. Acceptable by all stakeholders

New concept of reporting assessment results

I suggest that no single grade should be given for a subject in the new mode of examination because one pupil may show his/her true strength in one particular test

mode, but weak in other modes. The average over different modes may be a mediocre score for both which may underrate or overrate his/her competence. Although a credential based on a familiar standard set of compulsory subjects is easy for employers and admission officers to interpret, stakeholders may be puzzled by the complex regulations and weighting schemes used to equate the essentially non-equatable domains of the learning areas in the subjects. Thus, the new model is not recommended to give a single final grade for the overall performance of students in a subject. This resonates with the ideas of Fitz-Gibbon (1996) and Dr Hau (Ming Pao, 3.10.2000).

Components of the new mode of assessment

The proposed new model composes of the following four types of assessment which intends to measure the student's achievement more comprehensively on the basic knowledge, the structured presentation of subject materials, the problem solving and investigation skills, and achievement reports on non-academic performance.

1. A Computer-Based Assessment (CBA) as the 'Exit' examination
2. A conventional paper-and-pencil test
 - i. Section 1: Minimum Competence questions (50 marks)
 - ii. Section 2: Extended questions for the higher achievers (50 marks)
3. Performance Assessment (50 marks) may be one of the following types depending on the nature of the subjects:
 - i. Project work
 - ii. Portfolio
 - iii. Practical work etc.
4. Personal Achievement Report (PAR)

Justifications for the components of the new model of assessment

To identify students prepared to profit from education, the assessment needs to contain exercises and activities that require verbal facility, quantitative logic, and skills and understanding of major concepts used in the several disciplines to treat the phenomena with which they deal. Such an assessment, if well constructed and well planned, encourages the development in students of reading and writing skills, of fundamental

mathematics and an understanding of subject matter rather than detailed or rote memorization.

The development of an adequate assessment system for this purpose requires the use of a variety of device, since, for an assessment to be appropriate for a given educational objective, it must evolve from the student the kind of behaviour which is implied by the objective and it must also deal with the content which the objective implies. If every major objective of the school is appraisal by assessments which are appropriate to evolve the desired behaviour in connection with the specified content, then the assessments not only provide evidence of the results but also reinforce the efforts of students and teachers to attain these goals rather than distorting them.

A. Computer-Based Assessment (CBA)

The availability of powerful, low-cost computers as well as the fact that they are an ideal medium for on-line test delivery has made CBA an attractive alternative to the traditional testing format.

CBA is mainly used to test the students' basic knowledge. The testing items in the CBA are multiple-choice questions that are the easy way of testing factual knowledge, and more discursive test items are used to test conceptual understanding and skills. As mentioned before, MC questions in the CBA can also assess comprehension, application, analysis, synthesis, computation, interpretation and reasoning and any higher order learning outcomes if the items are well constructed.

Individual students are allowed to undertake the test in the examination centre when they think that they are confident enough to attempt the test. Even if they fail in the first instance, they can re-take it at any time they feel comfortable (Of course, they have to pay for the extra test each time). The rationale is to ensure that they can fully understand the factual knowledge and some basic concepts and skills that are crucial for their later study/development. This is some kind of a module test. Students can gain an overall pass for a subject when they have passed all the module tests of the subject. CBA will provide a report for pass or fail results with number of attempts recorded. This forms an

'Exit' for the students. If the students get passes for all the modules in CBA, they are eligible to sit for the conventional paper-and-pencil test.

The advantages of using CBA are multi-fold. The examination authority wants to move to 'just in time' assessment i.e. assessment needs not take place only at one point in the academic year, causing major upheaval to the education system, but can move to a situation where parts of assessment can be taken by groups of candidates when they are ready for it. The third advantage is the introduction of the modular assessment in the public examination. This can reduce the examination pressure from the students. Quick reliable and easy marking allows a greater proportion of a syllabus to be tested than is possible with other assessment methods. This can provide a much better overall indication of a student's achievement on a course. The results obtained in the CBA can be used for certification purpose. This can come true because as far as I know, the qualifying examination for the membership of the Microsoft Certified System Engineer (MCSE) is based on results of the CBA.

Assessment on demand will clearly depend on the availability of computer technology and the resources. The schools in China, Taiwan and Hong Kong now have the technology but the software packages and the item writers' skills are not yet there. These difficulties can be overcome for there is a growth of developing software packages for school examination purpose elsewhere (e.g. Question Mark in Scotland, AutoCAT in USA, QUEST in Australia etc.). It allows questions to be posed on the computer screen and students to answer them by pressing keys. It is feasible to modify them to suit our own needs.

CBA is particularly useful as one component of overall assessment systems, achieving some of the aims of a course very economically and allowing more resources to be allocated to other more demanding forms of assessment. They also have the effect of focusing students' attention on some basic features of the content of the course which might otherwise slip past unnoticed.

CBA as described here is basically a criterion-referenced assessment in nature that

measures to what extent an individual achieves. It is independent of how others have performed. Although the criteria are difficult to establish, the CBA should contain a certain body of knowledge as recognized by the subject experts that all students must know.

CBA can provide students with more frequent feedback than is possible with other kinds of assessment. In addition to the test scores, standard feedback comments can be produced to explain the answers. Students can use this information to help them decide what further work they need to do. The tests also provide teachers with information on the progress of the whole class so that they can make informed decisions about the focus of remedial lessons for those who cannot pass the 'Exit'. It also enables teachers to target remedial and specialist help on these students who need it.

Making use of that philosophy, most students revise selectively for their examinations. Their estimate of how many topics to learn is based on the number of topics covered on the examination paper and the amount of choice they are given. If a pass is achieved in the CBA of the course, it is a guarantee of the coverage of that course. CBA is also best used for the students to make their own choice. If the students can pass in the CBA, they will proceed to continue their study in that subject if they like, otherwise they will drop that subject completely.

With a lot of students taking different modules of tests in the CBA, it may be valuable to have an automated record keeping system to keep track of individual student progress, and identifying those who cannot complete the tests or who regularly take several attempts to pass. The records can also be used to review the assessment tests themselves.

Although we know that MC questions have some bad effects on teaching and learning, the availability of a sophistication of the normal MC test through the use of CBA will make it different. Here, the questions to be presented to a student at any point during a test can be chosen on the basis of the quality of the answers supplied up to that point. This can mean that each pupil can avoid spending time on items which give little useful information because they are far too hard or far too easy for him/her. (Bunderson, et al.

1989).

To conclude, CBA has the following advantages:

1. CBA allows students to take the test as long as they wish. It is a power test which provides sufficient testing time for the students. The marks they score truly reflect the students' understanding of the subject.
2. Since there are a large number of items available in the CBA that the pupils can attempt, greater coverage of the subject can be achieved. The content validity of the test can also be guaranteed.
3. As CBA is computer-marked, there is no threat to reliability in the marking.
4. Although many education professionals always criticize that MC questions are out of contexts, CBA can rectify this weakness by simulating the situation in a more contextualized one. Powerful graphic techniques can make the situations look real.
5. Students' achievements are not dependent on their writing skills.
6. The quality can be kept high by pre-testing a large number of items, discarding those which seem unsuitable and modifying others. The test-retest reliabilities guarantee the quality of the items.
7. In the previous chapter, we know that 'teaching to the test' has created some negative backwash effects in our education systems. However, as CBA is testing for the core knowledge and concepts of the subject, students have to learn by heart. So, 'teaching to the test' becomes the positive backwash effect to students.
8. The secrecy/ security of CBA is very important for fairness that can be guaranteed by
9. The assessments being downloaded to examination centres in the morning of the assessment.
10. The questions being compiled by computer from a bank of proven items in one centre would not be the same as the questions in another centre.

However, we have to take note of the following disadvantages:

1. They can give no direct evidence of pupils' reasons for their choices, so their value for formative and diagnostic purposes is limited.
2. Pupils may obtain some correct answers by guesswork

3. Although CBA can test students for a complex structure of knowledge and reasoning, it cannot assess their practical skills in the real situation. For instance, it is unrealistic to assess Michael Jordan's basketball skills by asking him to respond to a set of MC questions.

To overcome the disadvantages in CBA, I suggest to keep the conventional paper-and-pencil test and to introduce the performance assessment in the new model.

B. Conventional paper-and-pencil test

External examination, truly speaking, does not dissipate much of the potential learning value to the pupils. It can only give feedback to teachers that guidance on certain dimensions of learning domains should be emphasized for the next cohort of students preparing them for the similar examination.

However, we still need this type of question in the public examination. The reason is that essay questions call for open and extended responses which require complex structures of knowledge, reasoning to be explored, and teacher can explore the pupils' capacity to select, assemble and investigate various facets of knowledge and understanding, and to explain, evaluate and be creative with such material. This paper will be held once annually.

The proposed paper will split into 2 sections, the Minimum Competence Section (50%) and the Extended Section for the higher achievers (50%). In the Minimum Competence Section, students are tested for simple knowledge, understanding and application of knowledge to solving problems. The introduction of the Minimum Competence Section is to cater for the full range of abilities of students that enable them to address and apply both knowledge and skills to simple problems and tasks. It enables the low achievers to obtain recognition of achievement after the course. A pass (i.e. E grade) gives recognition of achievement of students on the basic knowledge and skills acquired during the course. Students are eligible to continue their next level studies if they obtain a fair pass in the Minimum Competence Section.

The design of the Minimum Competence questions will be determined by four factors:

- i. The depth of the content of the curriculum to be covered.
- ii. The context of the problem - the more familiar the context is to the candidate, the easier the question and vice versa.
- iii. The complexity of the question - questions in which the candidate has to extract the relevant facts and assemble them appropriately are clearly more difficult than questions in which the facts are simple and presented in a logical order.
- iv. The level of 'solution' expected from the student - clearly a well structured argument or explanation demands higher order skills than one that requires a simple phrase or a single sentence.

Although the Minimum Competence questions sound workable, however, it is difficult to decide to what extent the content of the curriculum to be included, and the levels of complexity of the questions to be asked. The attempt to pin knowledge down into criteria is difficult.

In the Extended Section, questions testing for the higher order thinking and problem solving techniques etc. are set for the higher achievers. Questions should normally be hard for the average students. A pass in this section will guarantee a grade C or above for the final grade of the subject. This part of the conventional paper can be considered as a bonus mark for students in the selection process. This message is very important to the public that the Extended Section will be an optional one.

Credibility Problems

The usual problem for the written examination is the difficulty to ensure the marking is reliable. Wood (1991) points out that with only one marker, a reliability coefficient is unlikely to be greater than 0.6 – which is seriously low – and that multiple marking will help reduce this. However, multiple marking is sometimes not feasible for large number of examinees because it is costing and time consuming. To avoid the worst effects of unreliability, I suggest the following measures to be used:

1. Only candidates' numbers, no names should be printed in the examination papers so that markers cannot identify individual students' papers. The papers are

- randomly allocated to different markers. This avoids favouritism.
2. The marking criteria should be clearly stated for the markers by the examination bodies.
 3. A moderation panel should be set up. Members of the panel are responsible for the sample marking. They sample the marked scripts from each marker and re-mark them. If some consistent discrepancies are found in the marking, adjustment will be made. However, if the discrepancies are found to be quite irregular, the marker's whole set of marked scripts have to be re-marked again by another marker followed by the moderation panel. This can enhance the marking reliability of the test. HKEA has used this moderation mechanism for many years and is found to be quite successful.

Advantages of using conventional paper-and-pencil test in the public examination:

1. Testing candidates' different skills in an external examination is still acceptable by the public as well as the professionals.
2. The topics tested are the central part of the course. Students know what constitutes an acceptable learning outcome and they can easily tell when further study is or is not necessary.
3. The paper-and-pencil test is a summative assessment to test students holistically for the whole course while the CBA is to test students for basic knowledge on a modular basis.

Disadvantages of the paper-and-pencil tests

1. Very often the real objectives of a course are not well matched by the kind of assessment used. In particular, courses with mainly practical aims cannot be assessed effectively by the essay questions in the paper-and-pencil tests.
2. Although questions in the paper-and-pencil test can be set in a more contextual nature, they are not authentic at all. Baxter and Shavelson (1994) find out that an examination paper using pictures and diagrams of the instruments or computer simulation gives results very different from performance tasks. This shows the limitation of the paper-and-pencil tests.
3. It is difficult to ensure marking reliability. Disputes may arise for the high stake

examinations. This problem has always worried examining agencies, particularly after Hartog and Rhodes (1936) has showed, by experiments with multiple marking, there is not any perfect marking in the real world.

C. Performance Assessment

Some of the most important aims of education cannot be assessed in the CBA and the conventional paper-and-pencil tests. Black (1990) points out that it is well established that a pupil's performance on a test of a specific skill will not serve as a guide to the capacity to select and deploy that skill in the context of a realistically complex task. Performance assessment can be regarded as more complete because it is intended to provide an assessment of attainment across the whole subject programme and across the whole of the study (Brooks & Brooks, 1993). Performance assessment also provides a rich source for measuring non-academic achievements of students. Teachers can observe their students' behaviour in the group work, their attitudes towards work, their communication skills, co-operation and leadership etc. These help teachers assess their students in the Personal Achievement Record (PAR) which will be discussed later. Furthermore, performance assessment opens up the assessment process to other stakeholders. Besides teachers, peer group assessment and student self-assessment are also possible.

It is the least arguable that both the reliability and validity in all areas to be assessed could be enhanced by a combination of teachers' assessment and external tests. However, performance assessment addresses the issue of context-skill interaction. It requires students to perform a series of operations which can provide evidence in relation to a number of different learning objectives (Airasian, 1991, p. 252). The shift from multiple-choice to performance assessment represents a shift in the educational paradigm and, as such, must be evaluated within the framework of the new paradigm. As performance assessment is viewed as an integral part of teaching and learning, while the traditional assessment is viewed as a separate, completely external event that should not influence teaching, these make the two fundamentally incompatible (Mitchell, 1992). We should have a new definition for the validity of the performance assessment. Ridgway & Passey (1993, p.68) have made suggestions for the validities.

(i). **Ideological Validity** – Ideological validity refers to the educational, moral, philosophical and political values that are implied by use of any particular assessment schemes. These assessment schemes reflect beliefs about what is important in any activity.

(ii). **Generative Validity** – Generative validity refers to the changes in behaviour which occur because a particular set of measures is used (e.g. using tests of arithmetic to assess a school's relative standing in Mathematics is likely to drive the curriculum towards basic skills, and away from conceptual understanding). Generative validity is knowable in principle, but can only be determined after a particular set of measures has been adopted.

(iii). **Tentative Generative Validity** - This validity identifies likely directions of changes and their inherent value.

(iv). **Corruption Coefficient** - It measures the extent to which scores can be raised on a particular measure without changing the phenomena which the measures are supposed to relate to, e.g. coursework scores can be improved by teacher input, without benefiting the student's understanding.

(v). **Stick-and-Carrot Validity** – It assesses the extent to which an assessment system can be used to control the education system.

I agree with their suggestions because I believe that if students' learning is to be enhanced, one must first achieve a consensus on appropriate Ideological Validity, then ensure that measures are chosen with a high Tentative Generative Validity and a low Corruption Coefficient. It is also necessary to ensure that Stick-and-Carrot Validity, when it is high, is used for beneficial rather than negative purposes.

To achieve the reliability of performance assessment, two major strategies are adopted. First, it invests all significant control of assessment in the centralised examination system. This control is effectively centralised by the statistical mechanism of moderating school-based assessment against externally examined components of the study, and/ or the candidate's performance in the CBA and the conventional Paper-and-pencil test.

The school-based assessment, made on teacher judgements on criteria set by the Examination Boards, consist of school-based coursework, based on student's overall performance on the modules, and moderated using the scores of the paper-and-pencil tests and the CBA to ensure consistency. Use of the CBA results to identify students with unexpectedly high results in school-based assessment, and to require schools to check the authenticity of the work. This triangulation effect by the components in the new model of assessment also increases its credibility.

To achieve high reliability is to amplify the requirement for explicitness in setting criteria and in documenting processes of assessment. Clear rubrics and marking criteria for markers and the setting up of the moderation panel can help to improve the inter-rater reliability. The potential for explicitness is viewed as a core strategy by which neutrality can be achieved and the assessment legitimated.

Basically, performance assessment has been used in China, Taiwan and Hong Kong in the form of Teacher Assessment Scheme for those practical subjects such as Physics, Chemistry, Biology, Home Economics etc. Teachers assess the students while they are performing their experiments in the laboratories. The handling of apparatus by the students can be easily assessed. This has increased the involvement of teachers in the assessment process. Although these kinds of assessment are accompanied by strict monitoring procedures, the assessment is subjective. To reduce subjectivity to a minimum, teachers can video-tape the process of experiment for close observation. The marking of their laboratory reports has dual purpose. First, it can help to confirm the masterpiece of the students and second, the students' ability to collect relevant data, to carry out statistical analysis, to interpret the results, to write up the reports etc. can be assessed.

However, in performance assessment, the problem of defining the assessment domain, of specifying how the performance will be judged, and of obtaining a representative sample of performance tasks poses special problems. Each requires its own specifications and scoring rubrics, and because of the time-consuming nature of performance assessment, the sampling tends to be limited. The problem of task

specificity (low correlation between scores on different tasks), which limits the extent to which results from small samples of tasks can be generalized to broader domains, is a serious concern. The difficulty in equating different forms of performance assessments may also reduce the utility of this kind of assessment in high-stakes applications (Mehrens, 1992).

There are different kinds of performance assessment that may be used in accordance with the nature of the subjects.

a. Project work

Project work is some kind of performance assessment. The purpose is to ask students to demonstrate what they can do. The teachers try to assess the students' knowledge and skills that they can apply to a real task and their ability of handling the real equipment. The level of proficiency demonstrated by the students can be assessed (Stiggins, 1994, p.60). Sometimes the end products created by the students are one of the evidence for examination.

Assessment Evidence for Project Work

One source of evidence can come from observation – which has to be sharply focused on the outcome criteria. When an end product is called for, we have to guarantee that the work is the masterpiece of the students. Marking by the output products of individuals have been shown to be unsatisfactory because a pupil's report can be selective. Interviews or oral presentations conducted with pupils after the work will help.

There is often advantage in having the pupils given an oral presentation so that there can be dialogue about the constraints and the reasoning behind strategies, tactics and interpretations that may not be clear from the 'product', and in some cases the processes involved may be demonstrated. Ross et al. (1993) find that talk is the most natural and the most productive way of evaluating students' creative processes and their critical appreciation of their own achievement (p.158). In fact, it is also a kind of checking whether the project is done by the students themselves or helped by their parents. When oral discussion is organized as a set part of an assessment, recording is essential, for it is

not possible both to concentrate on careful management of the interaction and to evaluate and record the responses at the same time. It is recommended to keep separate marks for the oral presentation because it involves a different attribute to be assessed.

To ensure the threats of subjectivity and bias, actions should be linked to clearly specified aims and criteria (Stiggins, 1994). The scheme of assessment should be transparent to teachers, students and parents, and informative in respect of their teaching and learning.

The prospects for satisfactory validity seem to be assured for this type of assessment. The activities are evidently face valid, but it can only follow that the assessment is valid if the schemes of marking or scoring reflect and respect this potential in the task performance. There comes a question, "How many projects should a student take for the examination?" Shavelson et al. (1993) point out that the projects can be able to show that an adequately stable assessment of pupils' performance would require taking an average score of at least three different investigation tasks simply because of the variations in pupils' performances between different tasks. The first project will be in a more structural one with guiding questions so that students know what to do. The second one will be less structured and the third one will be a completed free project without any guiding questions. This surely enhances learning and teaching.

In project work the process is often the most important element, and the skills involved in understanding the project and presenting its outcomes are generally more important than the outcomes themselves. It is therefore that the project tasks should be drawn from the task bank developed by the examination agencies so that their face, content and construct validities can be secured.

Since the choice of criteria dictates the direction and form of the project work, criteria for marking projects should clearly reflect these different educational goals and direct students' attention towards these goals.

Teachers in school are responsible for assessing the work of the students. They 'mark'

the work in accordance with the marking scheme supplied by the examination board. Each school has to send some marked samples to the examination board so that standards of marking can be checked. The board may change a teacher's marking if the marking is consistently lenient or harsh. If inconsistent discrepancies are found, further samples may be called for and marks may be adjusted. The moderation panel may even inspect all the completed tasks in school. The moderation process is quite similar to the essay test. It is believed that if the assessment criteria are clearly stated, the assessment for the project work can still be reliable.

The advantages:

1. Teachers can see how student learn as well as what they have learnt.
2. Student's multiple intelligence can be assessed through a complex task which calls for integrating knowledge.
3. Students are challenged to generate new knowledge and products.
4. Tasks call for the ability to engage in intellectual inter-personal or intra-personal work.
5. Tasks reflect the reality of the field of study being explored in the curriculum.
6. Tasks are embedded in the curriculum and an assessment is made of pupils' response to a genuine learning experience, not an unnatural one.
7. As Darling-Hammond et al. (1995) point out that project work is useful in assessing students' abilities because the tasks used are set in real contexts that connect school work to real world experience (pp.3-4).
8. Performance in the project work can be in psychomotor skills, in athletics, in communication skills, in applying new concepts to extended problems, in designing and making artefacts and so on.
9. There is well documented research evidence that project work linked to good learning practice does indeed give improved learning (Black, 1993, pp.54-56, Crooks, 1993). Wiliam and Black (1996) also point out that for the summative purpose, the project task is to determine the extent to which the students work has met given target criteria.

Although project work has some advantages as mentioned above, some students are

very concerned with the subjectivity of the teacher assessment, and some teachers worry about getting the students' projects from them before the due admission date, about marking the projects at the correct standard, about filling in the associated forms etc. (Ming Pao, 16.10.2000).

b. Portfolio Assessments

Portfolios are commonly used in the selection and assessment of students of art, design, fashion etc. A student's portfolio will contain sketch notes and versions of a final product as well as a number of finished pieces, selected from a year's work.

Building up and presenting a portfolio of work involves students in collecting pieces of writing, self-evaluating them, and selecting the best or those that go together to make the best portfolio. In other words, they are charting their own progress on the module, monitoring it and summarizing it. The portfolio method lends itself very well to student involvement in assessment.

Portfolio assessment allows one to consider a large, curricular-relevant, and representative sample of behaviour. Portfolio assessments come in at least three forms. One form evaluates a student's single work that demonstrated mastery or competence of major goals. A second form utilizes multiple examples of a similar product to evaluate attainment of growth. A third form evaluates a product during various phases of its completion to document the processes used.

Portfolio assessment involves self-evaluation and peer assessment. The involvement of students in the process of peer assessment can develop their critical appraisal skills, increase their awareness of a range of solutions to problems (Gibbs et al., 1995), develop their reflective skills (Schon, 1983, 1987) and contribute to the development of self-reliant and self-directed learners (Ashcroft & Palacio, 1996; Brown et al., 1997). It is used with different types of assignments such as essay (Falchikov, 1986), laboratory report (Stefani, 1994), poster (Orsmond et al., 1996), verbal presentation (Oldsfield & MacAlpine, 1995) and examination paper (Boud & Holmes, 1995).

The collection of samples of pupils' work in portfolios may also be a helpful approach, although these are more relevant to summative use, the formative aspect resides in the immediate appraisal of the individual pieces of work as they are produced, in the work of selecting piece of work to be present in a portfolio and in the preparation of a summary introduction to the portfolio, where these are undertaken in negotiation between teacher and student.

Although using portfolios as one kind of assessment has numerous advantages, however, it is very time-consuming. The selection of student's work samples and a periodic review of the portfolio to assess learning progress requires considerable negotiation time between teachers and students. Simply collecting samples of student work and putting it in a file does not provide for effective use of the portfolio.

c. Oral examinations

Oral examinations are commonly used in China, Taiwan and Hong Kong but they are only used to test for the language proficiency. In fact, oral examination can be in the form of oral presentation for the projects or interviews carried out in normal classroom learning as mentioned before.

Orals are used not only through adherence to tradition but because many teachers believe that only in oral examination can an examiner trace the student's thoughts and react by asking further questions. In an oral, it is possible to explore, in a unique way, the students' ability to communicate, to formulate his thoughts, to describe and explain physical phenomena, and to explain how and why new concepts and laws are established. In short, even though the difficulty of ensuring objectivity in examinations is recognized, there is a general belief that the depth of enquiry and the personal interaction that are unique to orals make them an indispensable method for assessment (Plazak and Mazur, 1993).

The oral examination has a number of regular uses:

1. The further assessment of work previously submitted in order to check that the student is the author of the submitted work, to explore particular questions in more

depth and to explore understanding further by raising new questions.

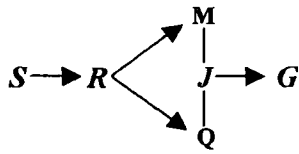
2. The assessment of the ability to think quickly and to diagnose problems in novel situations.
3. The assessment of personal questions and attitudes, or interpersonal skills.
4. The assessment of oral fluency and comprehension.

Oral examinations were once quite common at the end of secondary school, because they offered an opportunity for assessment based on interaction between the examiners and the candidate, and thus permitted examiners to shape standard questions to individual candidates. Nowadays, oral examinations are rare, mostly because the cost is considered too high, but also for fear of loss of objectivity and comparability across candidates. The problem of cost and subjectivity can be overcome if clear assessment criteria are designed for the teachers in schools. The process can also be video-taped for later observation. The tapes can be re-examined by the moderation panel for fairness. The students' marks given by the teachers can be validated by the peer assessment that forms some kind of indicators for teachers to make the judgement.

D. Introduction of the Personal Achievement Report (PAR)

Very often, examinations have a restrictive effect on the extent of educational instruction; they do not measure, for example, the progress of such valuable mental qualities as creativity, the spirit of initiative, the feeling of teamwork etc. and they ignore the analytical descriptions of intellectual skills. The PAR is best used to complement the deficiency of the measurement.

PAR is basically a Quality Measurement Model which is a 'Black Box' model for we cannot evaluate qualities directly. We can only supply different messages or information to individuals and observe their conditional behaviour responses. The Quality Measurement Model is a series of actions and criteria as shown in Figure 6.1:



Where **S** = Supply information for individuals
R = Responses by individuals
Q = Qualities to be assessed
M = Measurement Criteria
J = Judgement
G = Grade

The PAR is meant to give a comprehensive record of all aspects of a pupil's life in school, including but going well beyond classroom learning. In fact, the PAR can be used to measure the students' attainment in the domains of the five virtues i.e. ethic, intellect, physique, social skills and aesthetics. To show the achievements of students on these non-academic subjects such as sports, music etc., students are asked to write down the activities in which they have participated in each heading and give some descriptions of them (Appendix 1). Teachers give recommendations based on the descriptions and evidence that the students provide. Three grades A, B and C are going to be awarded. Grade C is for the average and grade A is for outstanding performance such as those who have represented their school to take part in an inter-school sports competition etc.

Although subjectivity of the teachers' assessing the students' non-academic subjects still exists, the broad classification of grading reduces it to a minimum. This resonates with Dr Hau (Ming Pao, 3.10.2000) that assessment roughly correct is better than precisely wrong. The public will welcome the introduction of the PAR because it can help to recognize achievements of pupils whose main strengths are not academic. Moreover, it can also provide employers with information, particularly about the way in which pupils contributed with a community, which they need to have and which examination certificates do not give. The design of the PAR is mainly based on the

multiple intelligence suggested by Dr Howard Gardner (1983) with the inclusion of the social/ethic attitudes so that it can roughly measure the student's five virtues.

Conclusion

1. To effectively change the established examination practice in these four Chinese cities is believed to be more difficult than other countries because most Chinese people deeply believe that examination cannot be replaced or changed. The chance for the new model of assessment to be accepted by the Chinese people in these cities will be increased only if we can show that the information produced in the certification process is relied on by various stakeholders - including students, schools, education authorities, higher education institutions, government and employers - for a variety of legitimate purposes. I believe that the stakeholders will accept the new model of assessment because it can make formative diagnosis on students by the CBA and the project work, and it can also make qualitative and quantitative measures on the five virtues by the PAR and the conventional paper-and-pencil tests.

2. To implement the new model of assessment effectively, we have to take the following into consideration:

- i. The choice of types of assessment has to be matched to the purposes and to constraints on time and cost.
- ii. CBA has many advantages, notably in coverage and reliability of scoring, but can have bad backwash effects on learning habits.
- iii. Essay questions are unique in expressing complex structures of knowledge and reasoning; the intended demands have to be specified to pupils in more detail, and the problems of reliable marking have to be tackled, in particular by the use of multiple marking of each response.
- iv. Project work meets some of the requirements for face, content and construct validities, however, the selection of appropriate tasks, and the procedures for ensuring reliability in assessment across different teachers and tasks, both require careful attention.

- v. Both the reliability and validity of a test result can be balanced if cost and time can permit the deployment of a range of methods.
- vi. The new concept of assessment emphasizes testing students' ability to learn to search for relevant knowledge/skills to the new problems. This gives a strong message to the curriculum professionals that the contents of the curricula have to be reduced. As mentioned before, to memorise a large volume of learning materials is basically not necessary for the students in our knowledge-based economy because they can obtain relevant information easily when they access to the internet.

3. The need for internationally equivalent credentials and certificates is leading to common examination patterns; this is most visible in the four places under study that belong to basically one country with different systems. Exchanges of young people from one place to other places are foreseeable. Many of them are willing to follow up their studies or to seek their job opportunities in one place or another. Thus, despite a need to adapt to local needs, a particular method of assessment adopted in one place will almost certainly have resonance in other places because a commonly acceptable examination pattern is required for easy standardization and comparison.

However, we found in our previous chapter that examination policy and practices were deeply constrained by local circumstances and cultural traditions. It becomes increasingly apparent in our ever more global society, 'what worked' in one setting may well not bear the same fruits in another. We can find lots of such examples in Hong Kong. Hence, we have to bear in mind that simple duplication of practices developed elsewhere, without taking into account the unique socio-cultural, economic, historical and political aspects of the place, is unlikely to be successful.

4. Frankly speaking, the new model is nothing new at all. It is basically derived from the existing models used in China and Taiwan with some modifications. The introduction of a variety of approaches such as the project work, portfolio assessment under the Teacher Assessment Scheme, and the PAR etc. has enriched the approaches to testing by breaking away from the dominance of the single terminal test and by

providing a widening of the range of student's characteristics that can be assessed and attested.

5. The eventual use of the performance assessment methods depends on their ability to promote learning while remaining cost-effective. The development of methods that maintain costs yet provide useful information to various consumers of test information poses significant challenges.

6. Although the proposed new model of assessment is only in theory and has not yet been tried out in schools, it obviously focuses on learning processes, uncover hidden talents and abilities, promote moral value and attitudes and enhance learning. It hopes to achieve assessing the following diversified potentials of students:

- ✧ To assess the students' understanding of the major concepts of the subjects;
- ✧ To assess the students' ability to demonstrate some basic skills;
- ✧ To assess the students' ability to demonstrate some higher order skills;
- ✧ To assess the students' communication skills and social activities skills;
- ✧ To assess the students' aesthetic skills;
- ✧ To assess the students' participation in physical activities; and
- ✧ To assess the students for their moral value and attitudes etc.

7. Although I have great confidence in using the new model to assess students' abilities, I do not wish to imply that the new model is an ideal system that will fall into place. It appears that one of the strongest dynamics in the development of modern examinations is the need for a suitable compromise between external and internal control. On one hand the astonishing increase in student population has caused public external examinations to be cumbersome, time-consuming, and certainly to continue to have a bad influence on teaching. On the other hand, demand for equivalence of standards, risks involved in relying on local school teachers, and used for relative freedom from curricular pressures, all tend to weaken the case for internal assessments. Naturally, the likely prospect is to seek to combine the advantages of both kinds of control, internal and external. As Noah & Eckstein (1990) have said, no examination system is without its defects, and the design of any system will inevitably involve a

series of trade-offs.

8. The new mode of examination has to meet the needs and to legitimate expectations of a variety of stakeholders, in the context of an education system and a society that are evolving rapidly in response to change in technological, economic and political factors. To achieve this, besides changing the content of the examination papers, the appropriate forms of assessment have also to be developed. Although this may induce some conflict problems relating to a shift in responsibility for assessment and the reliability etc., this is important because the present examinations are found to be invalid consequentially. With the implementation of the new model, it can send a clear message to teachers, employers and the community at large about skills, attributes and forms of knowledge that the students possess. To facilitate these four places to effectively use their human resources and to make the places continue to prosper, I believe that the new model of assessment will offer a window of opportunity to move in this direction.

Chapter 7

Conclusion

In the previous chapters, I have studied the examination policies and practices in Hong Kong in comparison with China, Taiwan and Macao, and have devised a new assessment model which tries to evaluate pupils' all-round development and to provide opportunities for them to demonstrate and record their achievements. Now it is time for me to conclude what I have found in the study and what the reflections are in this chapter.

Findings and reflections

In the comparative study of the examination policies and practices in China, Taiwan, Hong Kong and Macao, I find that there are a lot of similarities and differences in their examination systems. These findings and reflections help me greatly to devise a new assessment. I notice that these findings do not come naturally but have to be studied from different perspectives.

1. Examination should be studied from different perspectives

The comparative study confirms me that the study of examination lies at the heart of the study of education and is influenced by many other disciplines such as philosophy, sociology and psychology. The psychologists focus on the nature of learning, philosophers on the aims of education, and the sociologists on the links between schooling and society. The study of examination policies and practices tries to bring these various concerns together and thus analyses of examination have to use a range of perspectives (Morris, 1996).

From the study in Chapter 5, I find out that the development of the examination systems in the four places has been constrained by some societal factors. It is found that examination systems have to be judged not only on technical criteria but also in terms of their political and cultural comparability. I have outlined some of the characteristics of

the examination approaches found in the four places. The approaches have evolved over the course of development of these societies to the point where they have highly distinctive styles. Each reflects special concerns of the society – for competing scarce resources in the case of China, for encouraging diligent effort in the case of Taiwan and Hong Kong, for encouraging free choice of curriculum in the case of Macao.

2. Framework for the analysis

During the research from 1996 to 2001, I tried to adopt a framework suggested by Little (1990) for the analysis of the role of assessment in China, Taiwan, Hong Kong and Macao. The framework is simple and has only 2 dimensions – the first is the level of analysis; the second is the type of role played by assessment. The level of analysis enables us to distinguish for whom the role of assessment is played out. At first, I adopted the four levels of analysis as suggested by Fitz-Gibbon (1996): the individual student, the staff, the subject and the society (p. 91).

But in my search for explanation, I am compelled to look at the levels of analysis much deeper because a community can be viewed as a series of sub-communities. Each sub-community has its own stakeholders such as students, teachers, parents, curriculum developers, the business community, inspection services, examination bodies, local decision-makers, national decision-makers, and politician operating at different levels of social organization. Each is governed by a unique pattern of demands upon, and rewards for, people working within.

From the analysis in Chapter 3, we can see that examinations can create both positive and negative impacts on each level. These impacts are interwoven among the stakeholders in the society. Any changes in one level may surely have some positive or negative influences on its own or other levels. Some controversies may occur. This resonates with the query of Paul Black (1998) whether testing is a friend or foe to us. Thus we have to be careful for the possible controversies among different stakeholders if we want to change our examination policies and practices successfully.

3. Possible controversies among stakeholders

The controversies mainly come from the fact that assessment serves different needs for a large number of stakeholders in the communities. Different audiences require different information to carry out their different roles. Hence, the question about examination policies cannot be answered without reference to people's values and to political consideration. They are influenced by people's views of their society, of the purposes of examinations, the availability of resources and who controls those resources. As such, governments as well as politicians, parents and employers, educationists and students have attached increased importance to examinations. It is clear that examinations have psychological impact on all these parties. To direct reform at any party is to compound the problem and to confound the issues. Thus, the ideological behaviours of different stakeholders in the society have to be balanced. To make a good balance among the stakeholders, we have identified in Chapter 3 & 4 the functions of examinations that have been affecting the social lives of the people implicitly and explicitly.

4. Multi-Functions of examinations

In Chapter 3 we have found that examinations have multi-functions which can best be summarized by the word 'SCALE' as follows:

- ❖ Selection – tests help Governments, employers, schools etc. to select their officials, employees and students etc.
- ❖ Control – tests help Authorities to control the allocation of resources and to control the contents of the curriculum etc.
- ❖ Accountability – tests help students be accountable to teachers; teachers be accountable to schools which in turn be accountable to Education Authorities etc.
- ❖ Learning – tests help to promote and enhance learning of students etc.
- ❖ Entry – test results help students enter into higher education, enter into the employment market etc.

With these multi-functional characteristics, examinations have a prosperous development in China, Taiwan and Hong Kong even though when certain aims of them are out-dated, examinations still exist with other reasons.

5. Scaling of the multi-functions of examinations among stakeholders

The word 'SCALE' is best used as a mnemonic for the multi-functions of examinations because it reminds us that any changes in the functions of examinations will create tension between the social, economic or political purpose in the communities. This tension mainly comes from the changes in assessment practice that will depend upon the extent to which the needs of the most powerful sub-communities, in terms of driving or resisting innovation are served by the proposed changes. 'SCALE' draws our attention that if we want the roles of examinations to function well, we have to *scale* them among different stakeholders in the society, otherwise a lot of controversies may occur. The new assessment model is thus suggested so that all the stakeholders will accept the model.

6. Uniform examination system

From the comparative study in Chapter 4, China, Taiwan and Hong Kong have centralized curriculum developed by their own governments. This facilitates them to have uniform assessment systems. This shows that most educational systems with national curriculum have developed some form of acceptable national examinations for key transition points, while in more decentralized systems, such as USA much of the assessment work is school-based. What happens to a place where its curriculum is neither centralized nor decentralized? Macao is a good example. It has no examination system at all. These show that if we want to reform our examination systems, we have to reform our curriculum systems first.

7. Admission policies

Given what I have said about the structure of the education systems in China, Taiwan, Hong Kong and Macao in Chapter 4, it is hardly surprising that examinations play a crucial role in selecting the students who will obtain the decreasing number of places that are available as one proceeds through the system. Thus, admission to next levels of studies is based on the results of various examinations, such as admission to junior secondary school is based on performance in the examination at the end of primary schooling; admission to senior secondary school is based on the performance in the

examination at the end of the junior secondary cycle; and admission to tertiary-level education on performance in the school leaving examinations.

The admission of students to universities in these four places depends on the results of the unified entrance examinations and their relative positions in the list of the examination results. This admission policy exerts great pressure to students. Each place is recently trying to find some ways to reduce the examination stress on students. Evidence can be found in these four places. In China, the admission to higher education is based on the examination results of the three core subjects and one special subject, establishing a common core of basic knowledge to be assessed by national examinations. These core subjects are Chinese, English and Mathematics. The consequence of the shift from all subjects to '3+X' can greatly reduce the examination pressures from the students. Taiwan has gone even further, it is going to abolish the uniform national examinations (NUCAE) completely in 2002. Hong Kong has also reviewed its admission policy and examination practices recently. We can see that, though some changes have been made in the admission systems, the examination results are still considered to be important in the admission policies in China and Hong Kong. However, Taiwan has taken a bold step to remove the entrance examination from the admission system. Though it takes time to observe the impacts to its education system, its abolishment will surely deviate from the wishes of most Chinese people who think that examination is a fair tool for selection.

8. Social value of examinations in Chinese Society

Strongly influenced by traditional Chinese cultural values, and also by the realistic concern for the life career of the young, the great majority of parents put an excessive pressure on their children for academic success as exemplified in the old proverb "Wishing a child to become a dragon". Smith (1997) points out that it is not the mechanism of the school, the size of the class or even the methodologies used by the teachers that accounts for academic excellence; rather it is an elusive dynamic of internal motivation on the part of school children and their parents and relatives that generates success. At the base of their mentality, consciously or unconsciously, is the traditional reverence for scholarship coupled with the centuries-old tradition of a

scholar's competition for high places through the imperial examination system.

9. The concept of 'fairness' in the Chinese society

In Chapter 2 and 3, we find from interviews and literature review that the demand for fair examinations is extremely strong in the Chinese society. The Chinese people believe that examinations are the only means of impartial judgement. They are extremely cautious of anything that could be a subjective judgement. In fact examinations are in some way symbolic of fairness in the mind of most Chinese people. So it is important to note that any changes in examination policy and practices cannot be understood without appreciating the particular ethical attitude of the Chinese people to examinations. The people in China, Taiwan, Hong Kong and Macao all accept that examinations are neutral, fair and objective means of identifying superior achievement or talent of students which in turn provides some objective, fair, public criteria for selection. In the period of Cultural Revolution in China, all public examinations were abandoned, the admission of students to higher level of schooling was only by recommendation. This system is extremely suspect to the majority of Chinese. They smell privilege, political intervention, secret influences or even bribery. Thus, any changes in examinations in China, Taiwan, Hong Kong and Macao have to be dealt with carefully for they remain as crucial elements of social and educational life of the people. Any attempted reform of examinations, no matter how minor is liable to result in vociferous public debate. In other words, fairness of the examination practices is the main concern of the Chinese people. They seldom consider how well a test actually measures what it says it measures.

10. Ideological misconception of examination by the Chinese

There are a lot of debates about the changes of the examination policies and practices in China, Taiwan, Hong Kong and Macao. Some of these debates reflect the ideological misconception of examination by the Chinese people. They consider paper-and-pencil tests are the sole objective and fair tools for assessing students accurately. However, in my study, I find that most education professionals, industrialists, businessmen and even the governments are now challenging the validity of the existing examination systems. They are not satisfied with the 'products' of examinations in their societies. Students

with 'high marks low abilities' are not welcome in the knowledge-based society. We need to know more of the strengths and weaknesses of our students through various assessing activities. This resonates with Wood (1986) that,

“... an assessment is regarded as providing a comprehensive account of an individual's functioning in the widest sense – drawing on a variety of evidence, qualitative as well as quantitative, and therefore going beyond the testing of cognitive skills by paper-and-pencil techniques ...” (p.2).

11. Factors facilitating changes in the examination systems

Although everyone agrees that examination policy and practices could be and should be improved, no one is quite sure of what should be done. It is true because assessment is a murky business. It raises fundamental issues about our beliefs about knowledge in general, teaching and the educational process, and the relationships between the individual, school and society. Awareness of the plurality of views from different stakeholders is an important starting point for reform. Here, the agreement reached at a conference held in Brussels in 1966 that examinations should be an instrument not of selection but of guidance can effectively set a directive for change. To manage the change, we have to find out the facilitating factors for the reform of the examination system. Luckily some facilitating factors can be found in China, Taiwan and Hong Kong for the change.

It is unarguable that the society of China, Taiwan and Hong Kong has changed into a society of knowledge-based economy and that education should aim at promoting creativity, developing initiative, nurturing talent, creating qualities and skilled manpower needed for the industrial and economic progress of the country. There is a driving force for us to re-examine ways and means for examinations and assessment to translate these objectives into reality concretely, in the interest of children and education. Although we have developed the paper-and-pencil tests well in the examination systems, it is not sufficient to measure the high qualities of the students. Oakes has the following remarks:

“ We have fairly good paper-and-pencil measures of the most commonly taught basic knowledge and skills. But we lack adequate measures of

children's abilities to think critically, to apply their knowledge, or to solve problems" (Oakes, 1986, p.34).

To effectively measure the students' higher order qualities, we have to change our examination practices. The paradigm shift in assessment is supported by the constructivist views that problem-solving, modelling, and investigation work must be evaluated developmentally and holistically in context. This leads to the demand for changing the examinations into more authentic assessment.

With the exponential growth in the volume of information that students are exposed to, teachers need to understand that a strictly book-based pedagogical approach will need to change. This change, I think, can be developed only if the shift of assessment paradigm from paper-and-pencil examination to school-based assessment is possible. This means that the change of the examination practices can drive the change of the teachers' pedagogical approach (Education and Manpower Bureau, 1998, p.17).

There are other facilitative factors that can help us to change our examination policy and practices which are the advances in Information Technology (IT), as well as our scientific and philosophical understanding of human cognition. The current expansion in use of personal computer will remove many practical limitations to what we can test and how we can test it.

Although there are many factors facilitating the shift of examination practice from paper-and-pencil tests to authentic assessment, there is a core problem we have to face. We have to make sure that students have acquired sufficient basic knowledge and skills before they are asked to perform their projects in the authentic assessment because creative and critical thinking cannot occur in a vacuum. Some critical knowledge has to be learned and examined.

12. Critical knowledge has to be examined

No pill has yet been developed that enables a fool to become brilliant and mature overnight. Creativity and problem-solving skills can only be learnt and applied in the

context of some content knowledge. Thus, the acquisition of socially approved personal habits and critical knowledge is still required. This is needed because intelligent conversation cannot be conducted without specific knowledge of the topic at hand. In other words, the basics would still be taught and the critical knowledge and skills would still be examined for assuring the mastery of the students. Under these circumstances, it makes sense to publicize the testing objectives and general structure of tests and to encourage children to study for them.

However, we have to bear in mind that only the critical knowledge needs to be studied and tested, otherwise students have to suffer from testing for overloaded knowledge. Evidence can be found in China, Taiwan and Hong Kong where their education systems are said to be examination-oriented. Examination syllabi contain a large amount of information that is to be tested in the examinations. Students have to spend a lot of money and time in the private tutorial classes, just to practise examination questions and to memorise model answers. Ironical as it is, the rise of private tutorial classes is the product of a successful market economy combined with failed education systems.

Revisit the formulation of the new assessment model

Although paper-and-pencil tests are necessary for measuring the mastery of the basic knowledge of the students, many scholars criticize paper-and-pencil tests as barriers to understanding. Here is the comment from Perkins & Blythe (1993):

“ ... the tests for which [teachers] are preparing their students usually offer little support for the enterprise of teaching for understanding ... ”

There is an increasing worldwide acceptance that standardised testing programs produce information of more general use to systems in monitoring student achievement than information of direct use to teachers in improving student learning outcomes. So, if we want our examinations to facilitate learning and instruction, we have to devise a new assessment model that comprises both internal and external assessment in the examination system.

1. A compromise for using both internal and external assessments

With the new concept of cognition, new computer technologies, the drastic increase in student population, the demand for standards and so on, it appears that one of the strongest dynamics in the development of modern examinations is the need for a suitable compromise between external and internal control. The reasons are obvious. On one hand the astonishing increase in student population has caused public external examinations to be cumbersome, time-consuming, and certainly to continue to have a bad influence on teaching. On the other hand, demand for equivalence of standards, risks involved in relying on local school teachers etc. all tend to weaken the case for internal examinations. Naturally, the likely prospect is to seek to combine the advantages of both kinds of control, internal and external. To conclude, I would like to remind you of these words of Henry Macintosh (1990):

“... as far as the future of external examinations is concerned, the increased use of ‘mixed economy’ systems which combine with varying emphasis internal in-course teacher assessment with external, usually terminal examinations is anticipated.”

2. New assessment model

In Chapter 6, I formulate a new assessment model based on my belief that a curriculum should have a wide range of learning objectives and processes. To gain a comprehensive understanding of students’ progress and achievement, evidence of student learning should be collected by a variety of modes of assessment which should match the learning objectives (e.g. discussion for assessing learners’ abilities of collaboration and oral communication, presentation/dramatic performance for assessing creativity, tests and examinations for assessing knowledge product). Both the processes (e.g. inquiring, independent learning, reflections) and the products of learning (e.g. knowledge, concepts, problem-solving capabilities) are important aspects of student learning. These should also be reflected in the designs of different modes of assessment.

However, I remember the comment made by Gipps (1994) that any attempt to use formative assessment for summative purposes will impair its formative role. So in this

thesis, I am trying to formulate a new assessment model hoping to achieve the real measures of the students' performance and be acceptable by all the stakeholders. The suggested new assessment model comprises the Computer-Based Assessment (CBA), the Paper-and-pencil tests for minimum competency, the performance assessment such as project work, portfolio, course work etc. and the Personal Achievement Record (PAR). This new assessment model makes an excellent compromise between external and internal control. This supports the suggestion made by Wilson (1992) that students' understandings need to be estimated using a range of perspectives. The new assessment model emphasizes the individuality of the testing components and no aggregated scores are required. Different stakeholders may choose what they need from the assessment results. The changes of the admission systems in China, Taiwan and Hong Kong facilitate the implementation of the new assessment model.

Although the new assessment model sounds fantastic, the legitimacy of examination relies on their reliability and validity because it consists of direct and indirect measures.

A. Reliability and validity of the new assessment model

The issues of reliability and validity of different forms of assessment need to be explored: Measures can be reliable and valid when they are used for research purposes to predict some desirable outcome, then become useless when they are used as performance indicators themselves (Ridgway & Passey, 1993, p.68). That is to say, measures become less reliable and valid when they are high-stake. We can find a good example in Hong Kong. The Hong Kong Attainment Test (HKAT) for Mathematics, the broadly based psychometric test of mathematical attainment, may be good predictors of the mathematical competencies of children when used for research purposes, but would be invalidated completely if teachers 'taught to the test'.

There is a considerable literature about assessment in both psychology and education. Anyone with roots in these traditions will want to know about the reliability and validity of different measures. A major problem with much of this work is that it is overly concerned with technical issues such as reliability, validity, item analysis, scaling, factor analysis, the search for an understanding of the structure of particular domains, ways to

increase measurement accuracy, and the like, and it is too little concerned with conceptual issues about the uses to which tests are put, and the relationship between testing and teaching. I think both the technical issues and the conceptual issues are important for the new assessment model because it consists of both the psychometric (e.g. CBA & paper-and-pencil test) and the edumetric (e.g. performance assessment & PAR) aspects.

Both the standardised testing programs and performance assessment programs have their place. It is important to recognise the advantages and the limitations of both types of programs. Standardised tests are generally more widely accepted by those wishing to monitor standards in education to satisfy government's accountability measures. Performance assessments are more widely accepted by school based professionals who regard them as more applicable to providing information about student achievement of direct use to classroom teachers. However, the main obstacles to a wider acceptance of performance assessments are connected with public attitudes and expectations. In places where grades from tests or examinations have become accepted currency for judging individuals and where school-based assessments and teachers' judgements are not part of the 'assessment culture', doubts about the credibility of performance assessment and suspicious of bias have still to be overcome.

Assessment programs that rely on standardised tests are likely to continue to have high political and public credibility probably because they are reliable although their validity is often questionable. We have to look at the issues of reliability and validity of the new assessment from different perspectives.

a. Validity

Regarding the issue of validity, there is a central point to keep in mind. That is, the focus of validity is not really on the test itself, but on the validity of the inferences drawn from the test results for a given use. For the two psychometric measures, the face validity, content validity, the predictive validity and the construct validity of the test items have to be guaranteed. As these validities have well been discussed by the psychometricians for many years, I am not going to elaborate them. But, as for the

edumetric measures, we need to take good care of validities because performance assessments must pass technical scrutiny, if they are to become an accepted means of judging student performance. The issue on validities has been discussed in chapter 6.

b. Reliability

The issue of reliability is crucial for the acceptance of any assessment by people. It is recommended that whenever the trait or objective being measured can be measured objectively, an objective measure is preferred because of its greater reliability. However, I must point out that, though it is desirable to use the most reliable tests available, the need for reliability must always be balanced against the requirement of validity. As such, the issue of reliability is still a problem in the internal assessment marked by school teachers. It is therefore necessary to make sure that every effort should be taken to maximize the reliability of the scores when validity issues call for the use of a subjective test. Details have been fully discussed in chapter 6.

B. Problems concerning the new assessment model

The legitimacy of examinations relies on their reliability and validity and the success of the new model depends on the solvability of the following problems:

Problem of competence of teachers

This problem can be overcome by including the concept of internal assessment, its merits, problems and techniques in the teachers' training courses. For the in-service teachers, there should be special refresher course or training camps.

Problem of relating internal assessment to external assessment

It is not an easy task to relate the internal assessment to the external examination marks. In order to solve this problem internal assessment should be given in symbols and not in scores. Achievement of the pupils both at the external examination and the internal assessment should be shown on the certificates. It offers better scope to the employer or the admission officers in making the choice.

Problem of acceptance

Most Chinese people consider existing examination practices fair and acceptable. However, they may be changed if they have full confidence in the new assessment model. As such, experiments should be performed in some selected schools to show the merits of the new model. A sound technique of internal assessment should be developed with the help of the teachers and their co-operation should be sought in the implementation of the scheme thereby developing their confidence in it.

Recommendations

Whether or not examination results are the fairest way of distributing educational benefits is open to debate. What does not seem to be a matter of debate is that countries will continue to experiment with their examination system in the belief that examinations are effective device on which to base administrative decisions – a readily recognized view in Europe and one that is becoming popular in USA. As experiments proceed, it will be of interest to observe the values which underlie them and whether the examination system is used to resist change in the educational and social systems or to promote it.

As examination policies and practices are closely related to curriculum, teaching culture in the classroom, teaching performance of teachers and social expectations, any one particular kind of examination format is not good enough for the measuring purpose. What we need is more measured, analytical approach to assessment in education. We need to resist the tendency to think in simplistic terms about one particular form of assessment being better than another: consideration of form without consideration of purposes is wasted effort. We must develop and propagate a wide understanding of the effect of assessment on teaching and learning for assessment does not stand outside teaching and learning but stands in dynamic interaction with it. We need also to foster a system which supports multiple methods of assessment while at the same time making sure that each one is used appropriately.

We need to assess level of understanding and complexity of understanding rather than

recognition or recall of facts: “the strength and frequency of calls for authenticity in assessment are evidence of the influence of such a view of student learning” (Wilson, 1992, p.123).

Without challenging the importance of the learning outcomes measured by externally mandated tests, it is important to find ways to recognize kinds of learning outcomes. These include not only better tests for critical thinking and other higher order skills, but also ways to recognize student’s exceptional individual accomplishment, from written works or projects to artistic creations. Such recognition might come with broader dissemination and discussion of the range of criteria considered by colleges of admission (Ming Pao, 1999), and by more serious attempts to quantify and objectify significant personal qualities and attainments not measured on written examinations.

Despite the power of examinations to influence what goes on in classrooms, there are nevertheless limits on what can be achieved in this direction. Difficulties are encountered from pencil-and-paper test to school-based assessment because the Chinese case shows what may occur in the attempted transfer of a method from one culture to another when there are significant differences between the two cultures in their teaching methods, educational traditions, social attitudes and teachers skills. These are matters which can be loosely attributed to the teaching and learning culture in these societies. So far as the Chinese scene is concerned, there are a number of areas where change would be desirable but which are beyond the reach of the government. So I believe that if we want the suggested new assessment model to be implemented successfully, it would require a high level of consensus among stakeholders especially the teachers that this is desirable, and enthusiastic support for it at this grass-roots level. The recent changes in the admission systems in these four places can greatly enhance the success of the new assessment model. Their admission criteria emphasise on the student’s character, intelligence, sportsmanship, sociability and aesthetic sense rather than just their public examinations. This significant change will not only help to reform their exam-oriented education systems but also help to change the attitude of people and get rid of the culture of studying mechanically to pass examinations, which should be the legacy of the past.

I believe that, to change teachers' teaching culture, we have to enrich them with modern concept on teaching and learning, and the purposes of assessment. Thus, there is a need to exchange information about assessment and to build a network of education professionals with a wide appreciation of assessment issues. It is also felt that much can be granted from trans-national co-operation on teachers' professional development.

To make changes in current test policies and practices requires effective communication and collaboration within and between groups of disciplined-based testing experts, non-expert test users, policy-makers in education, training and employment; and representatives of interest groups that have traditionally been excluded from technical and policy debates about the uses and consequences of testing (Gifford, 1989).

Further study

Probably no one would disagree with the view that a change in the examination system that would improve the quality of education would be desirable. I hope the suggestion of the new model of assessment is towards this direction. This line of thinking is supported by Gray & Sharp (2001) who point out that there is surely enough evidence at the moment to suggest that a multi-modal approach to assessment is far better for children than any assessments which are over-reliant on one particular mode, whether that mode is solely paper-and-pencil test or purely practical. However, it is not clear that the changes that have been taking place have been directed towards the improvement of learning and teaching in any purposeful way. Further research for the impacts of the new assessment model to people is thus required. So my next project will be to develop the CBA system for the basic knowledge testing and to construct some authentic assessment tasks that measure skills not measured by multiple-choice tests. The proposed tasks may include problem-solving tasks, tests of hypothesis formulation, experimental design and productive thinking, hands-on experimental exercises, and simulations of scientific phenomena using microcomputers etc. I will ask some teachers in China, Taiwan, Hong Kong and Macao to try them out in their schools. These may help us to evaluate the appropriateness of the new assessment model in these four places.

Another important aspect I have to take care of is the issue of 'bias'. As the suggested assessment model comprises four components which may have different levels of influence on students of different sex, different culture. Thus, some research on 'bias' for the new assessment model should be carried out.

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Website:

www.losee@asiaonline.net

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Numerous interviews were held for teachers, education officers and scholars, students, parents and public (including businessmen, politicians etc.). At the request of many of the interviewees, I have chosen not to include their names in my thesis.

<p>LOGICAL/MATHEMATICAL</p> <ul style="list-style-type: none"> <input type="checkbox"/> Abstract Symbols/ Formulas <input type="checkbox"/> Outlining <input type="checkbox"/> Graphic Organisers <input type="checkbox"/> Number Sequences <input type="checkbox"/> Calculation <input type="checkbox"/> Problem Solving <input type="checkbox"/> Pattern Games <input type="checkbox"/> Others (specify): 		<p style="text-align: center;"><i>Grade for Logical/ Mathematical Skills:</i></p>
<p>BODY/KINAESTHETIC</p> <ul style="list-style-type: none"> <input type="checkbox"/> Folk/Creative Dance <input type="checkbox"/> Drama <input type="checkbox"/> Martial Arts <input type="checkbox"/> Physical Exercise <input type="checkbox"/> Sports Games <input type="checkbox"/> Others (specify): 		<p style="text-align: center;"><i>Grade for Body/Kinaesthetic Skills:</i></p>
<p>MUSICAL/ RHYTHMIC</p> <ul style="list-style-type: none"> <input type="checkbox"/> Music Composition/ Creation <input type="checkbox"/> Instrumental Sounds <input type="checkbox"/> Singing <input type="checkbox"/> Music Performance <input type="checkbox"/> Others (specify): 		<p style="text-align: center;"><i>Grade for Musical/ Rhythmic Skills:</i></p>

<p>INTERPERSONAL</p> <ul style="list-style-type: none"> <input type="checkbox"/> Giving Feedback <input type="checkbox"/> Cooperative Learning Strategies <input type="checkbox"/> Communication <input type="checkbox"/> Empathy Practices <input type="checkbox"/> Division of Labour <input type="checkbox"/> Collaboration Skills <input type="checkbox"/> Receiving Feedback <input type="checkbox"/> Sensing Other's Motives <input type="checkbox"/> Group Projects <input type="checkbox"/> Others (specify): 		<p style="text-align: right;"><i>Grade for Interpersonal Skills:</i></p>
<p>INTRA-PERSONAL</p> <ul style="list-style-type: none"> <input type="checkbox"/> Thinking Strategies <input type="checkbox"/> Emotional Processing <input type="checkbox"/> Mega-cognition Techniques <input type="checkbox"/> Higher-Order Reasoning <input type="checkbox"/> Others (specify): 		<p style="text-align: right;"><i>Grade for Intra-personal Skills:</i></p>

Remarks:

Grade A – outstanding performance

Grade B – above average

Grade C – average

