

Review of the Academic Structure of Senior Secondary Education Executive Summary

(1) Background

In its *Reform Proposals for the Education System in Hong Kong* published in 2000, the Education Commission (EC) put forward the idea of a 3-year senior secondary academic structure. It then set up a Working Group to examine the feasibility, specific measures, transitional arrangements and timetable of implementing the new structure. This paper reports on the EC's proposals regarding the implementation of a 3-year senior secondary academic structure after considering the report of the Working Group.

(2) Advantages of a 3-year Senior Secondary Academic Structure and Major Considerations

2.1 Drawbacks of the Current Secondary Academic Structure

At present, secondary schools adopt the '5+2' academic structure and students have to participate in the Hong Kong Certificate of Education Examination (HKCEE) and Hong Kong Advanced Level Examination (HKALE) respectively after completing Secondary 5 (S5) and S7. The design of our senior secondary curriculum, the mode of classroom learning and teaching, and the deployment of learning time are therefore largely examination-oriented. Moreover, the curricula of S6 and S7 are essentially tailored to prepare students for admission to universities. As a result, the content tends to be difficult and specialised. This is not in line with the aims and objectives of education for the 21st century, and which are to widen the horizon of students and consolidate their basic knowledge.

2.2 Educational Philosophy of a 3-year Senior Secondary Academic Structure

The adoption of a coherent 3-year senior secondary academic structure will facilitate the development of a more flexible cross-discipline curriculum. Under the new structure, students will be able to widen their horizon and consolidate their knowledge base through a more coherent and diversified senior secondary education. Furthermore, with fewer public examinations to attend to, students will be able to spend more time on enhancing their language proficiency and important generic skills.

2.3 Articulation with University Programmes

When a '3 + 3' academic structure is adopted in secondary education, local universities' first-degree programmes will have to be extended for one year, i.e. from the current 3-year structure to a 4-year one. Articulation with the commonly adopted academic structure overseas aside, the proposed change will allow universities greater scope to offer a wider choice of courses and groom students' personal development. Students will also be able to attempt courses of different disciplines in their first year of university education before deciding on their majors.

2.4 Articulation with Overseas Academic Systems

As most countries, including the United States and major provincial cities of China, adopt a 12-year structure for primary and secondary education and a 4-year structure for tertiary education, the switch to a 3-year senior secondary academic structure should on the whole better enable our education system to articulate with those outside Hong Kong. However, the switch will require a new mode of interface between our secondary school curriculum with the education systems of Britain and some other countries.

2.5 Recognition of Public Examinations

The current HKCEE and HKALE are well recognised both locally and overseas. Some people have referred to the risk of replacing them with a new public examination. However, after thorough deliberation with the Hong Kong Examinations and Assessment Authority (HKEAA), the Working Group considers that with sufficient time for preparation and detailed planning, a new and widely recognised public examination can be established.

2.6 Diverse Interests and Abilities of Students

Under the new '3+3 structure', most students will have the chance to complete six years of secondary education. Students' learning diversity will thus be more pronounced. Therefore, schools will have to provide a more diversified curriculum to cater for different interests and abilities of students. Teachers will also have to adjust their teaching concepts and strategies.

2.7 Conclusion

Having regard to the above major considerations and analyses, we believe that a 3-year senior secondary academic structure will provide students with a more coherent and richer senior secondary education. This change is not only in line with the philosophy of the education reform, it also represents a

better academic structure. In addition, the corresponding change in university academic structure can also create more room for strengthening and broadening university education, thus enhancing the quality of our students in a more holistic manner. Adopting the new structure is therefore beneficial to the entire Hong Kong education system. Nonetheless, the successful implementation of the new senior secondary academic structure hinges on securing all the necessary pre-conditions, including the development of the relevant measures and the availability of the necessary additional resources.

(3) Pre-conditions for the Successful Implementation of a 3-year Senior Secondary Academic Structure

The successful implementation of a 3-year senior secondary academic structure will depend on the following pre-conditions:

3.1 Development of an Appropriate Curriculum and Public Examination

The development of a new curriculum that can fully bring about the merits of the new academic structure and a new public examination that is recognised locally and overseas is essential.

3.2 Sufficient Preparation Allowed for Schools and Teachers

Schools and teachers must be given ample time and room to make preparations in aspects such as resources, training and management. To a large extent, the readiness of schools and teachers also hinges on the effectiveness of the various education reform measures currently underway.

3.3 Reorganization of Class Structure and Provision of Additional Schools

At least 34 additional schools are needed to facilitate the class structure reorganisation of existing schools in order to provide for additional S6 places and the abolition of floating classes. This will also enable the majority of students to complete their 3-year senior secondary education in the same schools.

3.4 Recruitment of Additional Teachers

The 34 additional schools and around 30 schools whose number of classes will increase following the class structure reorganisation will require a total of around 1 500 additional teaching posts. Furthermore, in the last year of the transition period when S7 will be operating in parallel with Senior Secondary 3 (SS3) under the new structure, some 1 500 additional temporary teachers will be required.

3.5 Enhancement of Teachers Training

It is necessary to modify the training programmes for new and serving teachers to help them develop the professional knowledge, skills and attitude required for implementing the new curriculum and addressing the greater learning diversity of senior secondary students.

3.6 Articulation with First-degree Programmes

There is a need to extend the first-degree programmes by one year and adjust university curriculum and admission criteria. It is also necessary to expand university campus and facilities as well as to adjust the deployment of teaching staff resources to cope with the increase in the number of undergraduates.

3.7 Collaboration with Other Post-secondary Institutions

It is important that other post-secondary institutions put in place multi-channelled and diversified learning opportunities to cater for the different interests and abilities of students.

3.8 Significant Resource Requirement

The preliminary estimate is that implementing a 3-year senior secondary academic structure will require additional non-recurrent expenditure of \$3.848 billion and recurrent expenditure of \$1.539 billion. Extending the first-degree programmes by one year will require additional non-recurrent expenditure of \$7.2 billion and recurrent expenditure of \$2.3 billion. (Details are in paragraph 4.7.)

(4) Initial Plan and Feasibility of Implementing a 3-year Senior Secondary Academic Structure

4.1 Curriculum Design

4.1.1 The new senior secondary curriculum should have the following features:

- To be implemented on the basis of the on-going curriculum reform with a view to widening the knowledge base, developing high-order thinking and promoting whole-person development of students;
- To introduce greater variety and flexibility in the selection of subjects to cater for the different interests and abilities of students. For example, consideration should be given to offering elective modules for some

subjects, dividing subjects into core and extension parts, and scheduling lessons in a flexible manner;

- To pitch the curriculum at international standards so as to meet the needs and expectations of the community and ensure articulation with the programmes of overseas universities;
- To adopt diversified mode of assessment and academic certification including assessment of students' performance based on student portfolios, internal assessment, results of other internationally recognised examinations, etc. to help realise the diversification of learning objectives and processes;
- To reduce the number of subjects to be examined without compromising the academic standard of students so as to enhance space for learning and learning motivation; and
- To encourage cross-curricular and inquiry-based approaches to learning to help students develop self-learning ability and life-long learning attitude.

4.1.2 Proposed Subject Combination

We propose that Chinese Language, English Language, Mathematics and Liberal Studies be offered as compulsory subjects under the new curriculum. The aim is to promote students' Chinese and English language and numerical skills as well as an ability to apply knowledge in everyday situation. Moreover, students are required to take two elective subjects according to their interests and abilities. They can also make use of the remaining time to acquire knowledge in other learning areas, participate in various kinds of co-curricular activities or engage in enrichment courses. The more able students can, after consulting their teachers, take one more elective subject. In brief, we propose the following subject combination:

Chinese + English + Mathematics + Liberal Studies + two elective subjects + other learning experiences
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4.2 Public Examinations

4.2.1 The new public examinations should have the following features:

- They should integrate with the curriculum of senior secondary education and emphasise assessing students' higher-order thinking and ability to acquire and apply basic concepts and knowledge effectively;

- They should provide clear assessment criteria. The adoption of standards-referencing in individual subjects should be studied with a view to providing a clear indication of the standard of students obtaining different grades;
- Flexibility should be provided for students to sit for the new public examinations as private students at different stages of their senior secondary education based on individual needs; and
- They should be recognised by local and overseas universities and institutions to facilitate students to further their studies or seek employment.

4.3 Articulation with University Programmes

With the implementation of a 3-year senior secondary academic structure, university curriculum and admission system will have to be adjusted to ensure a proper interface between senior secondary and university education in order that the change in academic structure can really achieve its aim of improving the quality of education.

4.3.1 Interface with University Curriculum

With the extension of the duration of the first-degree programmes, we believe there will be more room for universities to enhance liberal studies and language education, as well as to broaden students' horizon and learning experience through exposure to areas other than their major subjects. In addition, some faculties may consider allowing students to study different subjects in the first year so that they can explore their aptitudes and abilities, and decide on their major subjects in the second year.

4.3.2 Adjustments to the University Admission System

We recommend the following adjustment to the university admission system to ensure better interface with a diversified secondary school curriculum:

- (a) The subject requirements for admission be relaxed to allow secondary students greater flexibility to choose subjects of different learning areas and hence to broaden their knowledge base;
- (b) Student admission be coordinated at the faculty rather than academic department level so as to avoid premature specialization. In addition, students' performance other than public examination results should also be considered;

- (c) Currently, the minimum requirement for admission to a first-degree programme is a pass in any two subjects in the HKALE plus a pass in both Use of English and Chinese Language and Culture in the Hong Kong Advanced Supplementary Level Examination. Given the new combination of subjects proposed in paragraph 4.1.2, necessary adjustments should be made to the admission requirements of universities.

4.4 Interface with Other Post Secondary Programmes

When a 3-year senior secondary academic structure is adopted, we envisage that post-secondary programmes will generally admit SS3 graduates of the new academic structure (approximately equivalent to the existing S6 level). These include diploma courses, basic associate degree courses, higher diploma courses and associate degree courses.

4.5 Ways to Implement the New Senior Secondary Academic Structure

On the transition from the existing post-S3 “2 + 2” academic structure to the new 3-year senior secondary structure, we have considered the following two options:

- schools switching to the new structure by batches and in phases;
- one-off and across-the-board switch to the new structure.

In order to avoid confusion and possible labelling effect to individual schools and students arising from a phased transition, we recommend the adoption of a one-off and across-the-board switch. This option is proposed having regard to the question of fairness and the practical manpower and resource problems that the HKEAA may experience if a number of public examinations are to take place concurrently. Nevertheless, we may need more preparation and planning time to ensure the presence of all supporting measures.

4.6 Timetable for Implementing the New Academic Structure: An Assessment

As mentioned earlier, the implementation of a 3-year senior secondary academic structure requires the pre-conditions outlined in paragraphs 3.1 – 3.7. Our preliminary assessment of the time required for putting in place these pre-conditions is as follows:

4.6.1 Reorganisation of Class Structure

Progressive reorganisation of class structure should commence at S1 in some of the existing schools three years before the switch is due. Working

backwards, site identification and construction of additional schools to meet the demand for additional school places should commence four to five years before class structure is reorganised.

4.6.2 Development of a New Senior Secondary Curriculum

Development of new curriculum framework and guides as well as teaching resources for the senior secondary curriculum should start around four to six years before the introduction of the new curriculum. In addition, preparation needs to be made for the provision of new curriculum-oriented training for serving teachers. Implementation of the new curriculum should take account of the progress made in the ongoing curriculum reform, including changes in the learning and teaching culture.

4.6.3 Development of a New Public Examination

Curriculum cum assessment guide as well as the assessment criteria, mechanism and mode need to be devised around four years before the switch. Local and overseas recognition of the standard of this new public examination also needs to be sought.

4.6.4 Modification of Pre-service Teachers Training Programmes

The content of the existing programmes should be adjusted in line with the ongoing curriculum reform which in fact provides the conceptual underpinning for the new senior secondary curriculum. This will also obviate the need for another major adjustment as a result of the introduction of the new senior secondary curriculum. Furthermore, teacher training institutions should begin increasing their intakes three years before the switch so as to meet the demand for more teachers under the new structure.

4.6.5 Extension of First-degree Programmes and Adjustment of University Admission System

Given the greater flexibility of tertiary institutions, they should be able to complete the adjustment of university curriculum and admission systems by the time the above-mentioned pre-conditions are in place.

4.6.6 Coordination with the Relevant Education Reform Measures

The Secondary School Places Allocation System will be reviewed in the 2003/04 school year, and the first batch of students will progress to S1 in 2006 under the new arrangement. Depending on the outcome of the review of the Medium of instruction (MOI) policy, there may also be changes in the MOI of secondary schools in the same year. As this batch of students will be in S4 (i.e. SS1 under the new structure) in the 2009/10 school year, a more appropriate

arrangement is to introduce the 3-year senior secondary structure in the 2010/11 school year so that they need not go through two major changes in academic structure during their secondary education.

4.6.7 Conclusion

As mentioned earlier, it takes 7 to 8 years to develop and put in place all the pre-conditions. In addition, taking into account the other education reform measures, even if preparation for implementation were to start immediately, the estimated commencement date of the 3-year senior secondary academic structure should be around the 2010/11 school year at the earliest.

4.7 Resource Assessment

4.7.1 Resources for Implementing the New Academic Structure

Initial assessment is that implementing the new 3-year senior secondary structure will incur an additional non-recurrent expenditure of \$3.848 billion and recurrent expenditure of \$1.539 billion. A breakdown of the expenditure is shown in the following table:

	Non-recurrent Expenditure (\$bn)	Recurrent Expenditure (\$bn)
Operating 34 new schools	3.1	1.4
Increasing the number of classes in some schools as a result of reorganisation of class structure	-	0.079
Developing a new curriculum and training serving teachers	0.4	0.06
Expansion of school places and so induction training to new teachers	0.28	-
Developing new public examinations	0.068	-
Total	3.848	1.539

4.7.2 Resources for Extending the First-degree Programmes

On the basis of the current annual student unit cost and the facilities required, it is estimated that extending the first-degree programmes for one year will incur an additional non-recurrent expenditure of \$7.2 billion and recurrent expenditure of \$2.3 billion. Nevertheless, since the university sector has greater flexibility in managing resources, there may be room for adjusting downwards these estimates in the coming few years.

4.7.3 Government's Fiscal Stringency

As mentioned earlier, it takes 7 to 8 years to have all the pre-conditions put in place. However, if the new academic structure is to be implemented in around the 2010/11 school year, then part of the non-recurrent expenses (e.g. the expenses for construction of new schools and development of new senior secondary curriculum) will have to be incurred shortly. Committing spending of this magnitude over the coming few years is unrealistic in view of the Government's current fiscal constraints. We recommend the Government to take the implementation of the new academic structure as a medium term goal and strive to implement it early. To this end, while the Government should actively review and redeploy the resources required, all sectors in the community can also make suggestions on how to raise funds or reduce the additional resources required. For example, universities may actively consider switching from a 3-year to a 4-year curriculum through other means (such as soliciting donations from the private sector, redeploying existing resources and greater flexibility in programme arrangements). The education sector can also put forward ideas on resource redeployment or identification of new revenue measures.

4.8 Proposal in Respect of the Implementation Timetable

- 4.8.1 Appropriate changes in the learning and teaching as well as assessment culture are key to realising the merits of the new senior secondary academic structure. The cultural change is taking place gradually due to the implementation of the education reform and the curriculum reform. A new teaching mode which is student-focussed, caters for students' diverse abilities and cultivates students' sense of ownership of their learning, is already being practised in various degrees at different schools. At the same time, the HKEAA and schools have separately started to review and reform public examinations and school-based assessment respectively. The purpose is to enhance the positive effects of assessment on learning and teaching. The HKEAA has also conducted an organisational review in response to the changes to be made on assessment. The results of that review will be implemented in the coming few years.
- 4.8.2 In addition, the reviews on Secondary School Places Allocation System and Medium of Instruction will start in the 2003/04 school year. The post-review measures will be implemented from S1 in the 2006/07 school year. These two reviews will have major impacts on student admission, curriculum design, and deployment of teachers and other resources at the secondary education level. We envisage that schools will take time to reflect and make the changes required.
- 4.8.3 Since the new senior secondary academic structure is a major systemic change, we consider that a pragmatic approach would be to prudently review the changes in the learning and teaching, as well as assessment culture, and the

capacity of schools and other implementation agencies before firming up the implementation timetable. However, as the new senior secondary academic structure helps enhance the overall effectiveness of secondary education and is an important milestone in the education reform, we consider that the implementation timetable should be firming up in the near term. We consider that period between the years 2003/04 and 2006/07 can be taken as the early preparatory phase. During this time, Government should continue to take forward and consolidate the ongoing education reform measures such as the curriculum reform, public examination reform and enhancement of teachers' training, etc. (Details are in immediately following section). The Government should clearly announce, in 2006/07 at the latest, when senior secondary 1 (SS1) under the new academic structure will be in place. In any circumstance, parents should be given at least 3 years prior notice of the change in academic structure.

(5) Education Reform Measures to be Taken Forward Before Switching to the New Senior Secondary Academic Structure

5.1 Consistency of the Reform of Senior Secondary Academic Structure with the Overall Direction of the Education Reform

Despite the absence of a definite date for its implementation, the proposed new academic structure, the overall education reform and the ongoing curriculum reform share the same basic tenets. Apart from a few recommendations (for example, replacing the HKCEE and the HKALE with a new public examination), most of the proposals of the new academic structure pertain to improving the quality of education and changing the attitude to learning and teaching; and all these are consistent with the education and curriculum reforms. We are delighted to note that the Government has progressively implemented the education reform initiatives including, for example, reforming the secondary school curriculum and public examination system and discussing with the universities how to reform their admission system. These initiatives will not only help raise the quality of education, they also pave the way for adopting the new structure of senior secondary education. These initiatives can facilitate the adaptation by the relevant implementing agencies, secondary schools and universities to the new academic structure, so that the benefits of the new structure can be realised expeditiously when all the pre-conditions are in place. We therefore suggest that prior to changing the structure of senior secondary and university education, the Government and the education sector should focus on pressing ahead with the prevailing reform initiatives, in particular those in the following key areas in order to give early benefits to students and prepare for the reform of the senior secondary academic structure:

- Continued reform of secondary school curriculum: to diversify the curriculum and learning modes at the senior secondary level (i.e. above S4) to cater for students' diverse abilities and interests;

- Reforming public examinations: to design more open-ended items to encourage independent thinking and problem-solving skills;
- Enhancing teachers training: for a better coordination with the changes that will be brought about by the new curriculum and reform of the mode of assessment;
- Reforming the university admission system: to take into account performance in both the academic and non-academic domains so as to encourage students' all-round development; and
- Adjusting the university curriculum: to strengthen the development of students' generic skills.

5.2 Continued Reform of Secondary School Curriculum

The Curriculum Development Institute (CDI) has embarked on the curriculum reform since 2000. The reform includes the review of the S4 to S7 curriculum under the existing academic structure. The current reform paves the way for the future implementation of the new senior secondary curriculum. We propose the following changes to the existing SS curriculum with a view to providing more choices for students:

5.2.1 Enhancing the Flexibility in the Combination and Choice of Subjects

We propose the progressive increase in students' choice of subjects. For instance, arts students will be allowed to take science subjects while science students can choose arts subjects according to their interests and abilities. Some proposed subject combinations are as follows:

For S4 and S5

Chinese + English + Mathematics + A + B + other subjects in the eight key learning areas (KLAs) + experiential learning in other areas (e.g. sports, art, co-curricular activities, community service and job-related experiences).

“A” represents an elective subject in the KLA of Personal, Social and Humanities Education. For students who plan to take only one subject in this area, schools should advise them to choose Integrated Humanities.

“B” represents an elective subject in the KLAs of Science Education and Technology Education. For students who plan to take only one subject for both areas, schools should advise them to choose Science and Technology.

Example:

Streaming of subjects	Chi	Eng	Maths	A	B	Elective subjects in other KLAs	Total no. of elective subjects	Other learning activities
Science	✓	✓	✓	Geography + Chinese History	Physics + Chemistry + Biology + Computer and Information Technology	--	9	✓
Science	✓	✓	✓	Integrated Humanities	Physics + Chemistry + Biology and/ or Computer and Information Technology	--	7 or 8	✓
Arts	✓	✓	✓	Geography + Chinese History	Home Economics + Biology	Art and Design	8	✓
Arts	✓	✓	✓	Geography + Chinese History + Economics	Science and Technology	--	7	✓
Technical	✓	✓	✓	Integrated Humanities	Engineering Science + Technological Studies and/ or Computer and Information Technology	--	6 or 7	✓
Commercial	✓	✓	✓	Integrated Humanities	Principles of Accounts + Word Processing and Business Communication (English) and/ or Commerce	--	6 or 7	✓
Others	✓	✓	✓	Integrated Humanities	Science and Technology	Physical Education and/ or Music	6 or 7	✓

To promote students' exposure to both arts and science through taking subjects from both the areas of "A" and "B", schools should, in their admission of S6 students, give priority to those who have taken subjects in these two areas in S4 and S5, in addition to looking at their HKCEE results.

For S6 and S7

- Use of English at AS Level +
- Chinese Language and Culture at AS Level +
- Liberal Studies at AS Level (one specified module[#] and one project) or one independent “project” +
- One A Level subject + one AS Level subject or two A Level subjects (students may take more, or less, elective subjects according to their abilities)+
- Other learning activities (e.g. sports, art, co-curricular activities, community service and job-related experiences)

([#] Schools should advise students to take modules which are different from or complementary to the disciplines that they have chosen, e.g. Science students may take Today’s China, whereas Arts students may take Science, Technology and Social Studies so as to widen their knowledge base, enhance their ability to integrate, analyse and apply knowledge in real life.)

5.2.2 Revising and Improving Subjects Now Offered at Senior Secondary Level

- The development of a new senior secondary curriculum should be preceded by a review, revision and improvement of the subjects currently offered at senior secondary level. Hence, the present or soon-to-be-revised design and structure of the S4-S5 and S6-S7 curricula should facilitate the development of the new senior secondary curriculum. For example, we may extend the curriculum of some S4/S5 subjects or merge, where appropriate, related subjects at the S4/S5 and S6/S7 levels.
- To cater for the diverse abilities, interests and needs of students and to provide them with more learning options, core and extended parts/modules should be developed when revising or enhancing the curriculum of certain subjects. The purpose is to provide a diversified academic or job-related curriculum.

5.2.3 Modifying the Learning and Teaching Strategies

Schools and teachers are advised to enhance their learning and teaching strategies in respect of the following:

- To implement flexibly the four key tasks of Moral and Civic Education, Project Learning, IT for Interactive Learning and Reading to Learn, so as to improve students' ability to construct knowledge, enhance their generic skills and help develop the correct values and attitudes;
- To develop students' thinking ability through effective questioning;
- To enrich students' learning experience through life-wide learning and project learning;
- To promote self-regulated learning mode and pace through the use of students' learning portfolios. The purpose is to develop students into active and independent learners;
- To review and adjust the various roles of a teacher as an instructor, learning facilitator, information provider, counsellor and assessor; and
- To cater for the different learning needs of students through the deployment of diversified learning materials, including web-based resources, IT software, the media and natural resources.

5.2.4 Organising Courses with Other Institutions

We propose that schools should strengthen their co-operation with other education and training providers (such as the Vocational Training Council) in order to provide courses of different nature and focusses for senior secondary students. In addition, the adoption of appropriate teaching methods would help students develop an interest, confidence and ability for continuing education, as well as obtaining recognised qualifications for further studies or employment.

5.2.5 Adopting a Diversified Mode of Assessment

We recommend schools to adopt a diversified mode of assessment as soon as possible. Such can include student learning portfolios, internal assessment reports, public examination results, different internationally recognised examinations and other qualifications recognised by professional bodies or tertiary institutions. This is in line with the promotion of diversified learning targets and pathways advocated by the education reform. In addition, a diversified mode of assessment can also provide students with more comprehensive feedback to enable more effective learning.

5.3 Reforming Public Examinations

The reform in public examinations should integrate well with the curriculum reform. We propose to reform the public examinations gradually in the following aspects.

5.3.1 To Increase the Proportion of Open-ended Items

We propose that the HKEAA should increase the proportion of open-ended items to provide candidates with more room for independent thinking and expression of individual views. Learning by rote will also be reduced as a result. So long as the answers are relevant and reasonable, marks should be given even if they do not feature in the marking scheme.

5.3.2 To Emphasise the Assessment of Students' High-order Thinking

Public examination items should be so designed that they focus on assessing generic skills, high-order thinking and integrative abilities of students. Relevance of the items to real life situations should be enhanced in order to assess students' ability to solve problems and apply knowledge.

5.3.3 To Improve the Grading Mechanism

Under the current grading mechanism, the norm-referenced approach is applied to students of the schools in the control group. Once the cutting scores of respective grades are determined, they will be applied to all candidates. While this mechanism enables the longitudinal inter-year comparability of grades, it cannot reflect clearly the knowledge and skills that a candidate has acquired. It therefore falls short of meeting the current expectations of our community. With a view to improving the grading mechanism, the HKEAA is now drawing reference from overseas experience and studying the feasibility of adopting the standard-referencing approach in local public examinations. On establishing its feasibility, the standard-referencing approach can be implemented progressively without the need to await the implementation of the new academic structure of senior secondary education.

5.3.4 To Consider the Introduction of School-based Assessment

The introduction of school-based assessment is being considered for individual subjects in public examinations. School-based assessment may cover students' performance:

- during the learning process;
- in independent research, project learning, experiments or assignments.

5.3.5 To Develop Joint Curriculum and Assessment Guides

As mentioned in the *Reform Proposals for the Education System in Hong Kong* issued by the Education Commission in 2000, assessment is part of curriculum. Assessment helps teachers and parents understand students' learning progress and needs, as well as their strengths and weaknesses. It thus provides useful reference for the design of curriculum, teaching methods and special remedial materials. Therefore, the Curriculum Development Council (CDC) and the HKEAA will step up their cooperation in the development of joint curriculum and assessment guides for the new subjects under the present academic structure of senior secondary education. The purpose is to enhance students' learning effectiveness through enhancing the interface between the secondary school curriculum and public examinations.

5.4 Enhancing Teachers Training

As mentioned in paragraphs 5.2 and 5.3 above, the secondary school curriculum and existing public examinations will be reformed progressively before the implementation of the new senior secondary academic structure. The teacher training institutes will need to adjust their programme contents progressively in close consultation with the CDI, the HKEAA and other related organisations so as to facilitate teachers' acquisition of the knowledge and skills required for adapting to the new senior secondary curriculum, e.g. an enhanced ability to teach cross-curricular programmes (e.g. Liberal Studies) and an understanding of diversified modes of assessment. So adjusting the existing teachers training programmes not only supports the education reform, it will also obviate the need for another major adjustment when the time comes for adopting the new senior secondary curriculum.

5.5 Reforming the University Admission System

We would like to call on the universities to positively examine and implement, even before the change in the academic structure of university education, the following improvements to the admission system with a view to encouraging students' whole-person development.

5.5.1 Taking Into Account Students' Overall Performance

In addition to public examination results, universities should also consider the following:

- (1) secondary school internal assessment reports (including students' performance in both the academic and non-academic domains);
- (2) student learning portfolio; and
- (3) performance at interviews, etc.

5.5.2 Giving Due Emphasis on Students' Breadth of Knowledge

In respect of the requirements on subjects taken by students in secondary schools, we recommend that universities should consider the following reform proposals:

- (1) giving priority to those students who have taken AS Liberal Studies, as this subject can help students broaden their knowledge base and develop essential generic skills;
- (2) replacing as far as possible A Level subjects with AS Level subjects in university admission requirements, thus emphasising the importance of a broad knowledge base; and relaxing the subjects required to be taken at the secondary level so as to provide students with more room to choose subjects of different learning areas during their secondary education;

5.5.3 Setting Up a Data Bank of Schools' Internal Assessment

Setting up a data bank of schools' internal assessment (covering both the academic and non-academic performance) of students applying for admission to universities through the Joint University Programmes Admissions System (JUPAS) for reference by the universities;

5.5.4 Multi-channel Admission

Increasing to an appropriate level the proportion of students admitted through channels other than the JUPAS, including:

- (1) the Principals' Recommendation Scheme;
- (2) the Students' Self-recommendation Scheme; and
- (3) admission on the basis of recognised qualifications/certification other than the HKCEE and HKALE (for example, the International Baccalaureate, the GCE A-Level and other recognised qualifications granted by international examination bodies, as well as sub-degrees).

5.5.5 Increasing the Transparency of the System

Increasing the transparency of the university admission system so that students, parents and secondary school principals and teachers can have a better understanding of admission criteria other than public examination results, including considerations such as students' aptitude, values and attitudes as well as inter-personal and other skills as reflected through their participation in community service, non-academic activities and interviews, etc.

5.6 Adjusting the University Curriculum

To enable a progressive adjustment to the breadth of university curriculum so as to ensure a proper interface between secondary and university curricula, we propose that universities should maintain close contact with the CDC to keep themselves informed of the progress of the reform of secondary school curriculum. We consider that, even prior to the implementation of the new senior secondary academic structure, adjustment to university curriculum can still be made in the following aspects:

5.6.1 Further Consolidation of Students' Generic Skills

Generic skills in areas such as collaboration, communication, creativity, critical thinking, information technology, numeracy, problem-solving, self-management and study should be further cultivated. In addition, efforts should be made to enhance students' language proficiency and inter-personal skills. With a view to helping students equip for the challenges of the 21st Century, students should also be encouraged to become active learners who enjoy learning.

5.6.2 Enhancement of Liberal Education

Students should be given exposure to learning domains other than the areas that they major in so as to broaden their horizon and learning experiences as well as to widen their knowledge base.

(6) Conclusion

A 3-year senior secondary academic structure should help provide more room for a more coherent and diversified secondary school curriculum; and this will in turn facilitate the attainment of the overall objectives of the education reform. That said, securing all the pre-conditions is a prerequisite to realising the benefits of the new academic structure. These pre-conditions pertain to the design of the new curriculum, development of new public examinations, adjustment to university curriculum and admission system, the readiness of schools and teachers as well as the need to construct additional facilities for

the secondary and university sectors. It is estimated that these pre-conditions will take 7 to 8 years to develop. On the other hand, schools, the HKEAA, the CDI and other concerned implementation agencies are currently carrying out with full strength the education and curriculum reforms. Any new reform should take account of their capacity constraint in order to ensure effective implementation. In addition, the implementation of the new structure would require significant additional resources. Part of the expenditure, such as that for constructing new schools and developing the new curriculum, would need to be incurred at the initial preparatory stage. In view of the Government's present fiscal stringency and the aforementioned capacity consideration, we consider that the period between the years 2003/04 and 2006/07 can be taken as the early preparatory phase. During this time, Government should continue to take forward and consolidate the ongoing education reform such as the curriculum reform, public examination reform and enhancement of teachers' training, etc. The Government should clearly announce, in 2006/07 the latest, when SS1 under the new academic structure will be in place. In any circumstance, parents should be informed at least 3 years prior to the commencement year of SS1. We also encourage the education sector and other interested parties in the community to make proposals on how to raise funds or reduce the additional resources required for implementing the proposed new academic structure.

The executive summary on the review of the senior secondary academic structure has been uploaded on the homepage of the Education and Manpower Bureau (<http://www.e-c.edu.hk>) for public reference. The full report on the review will be uploaded on the same homepage shortly.